

# HELMINTHOLOGICAL ABSTRACTS

*incorporating*  
BIBLIOGRAPHY OF HELMINTHOLOGY  
For the Year 1938.



IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY  
(HELMINTHOLOGY)

Winches Farm    Hatfield Road  
St. Albans    England

IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY (HELMINTHOLOGY)

*Director* - - Professor R. T. Leiper, M.D., D.Sc., F.R.C.P., F.R.S.

*Deputy Director* - A. E. Fountain, B.A., F.L.A.

*Technical Assistants* Miss A. Walton, Miss H. M. Schiller,  
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Abstracts in the present number are by :

J. J. C. Buckley.	H. O. Mönnig.
Phyllis A. Clapham.	D. O. Morgan.
Mary T. Franklin	J. N. Oldham.
T. Goodey.	B. G. Peters.
R. H. Hurst.	Katharine M. Sanderson.
J. W. G. Leiper.	Enid M. Smedley.
R. T. Leiper.	Marjorie J. Triffitt.
V. D. van Someren.	

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FOR THE YEAR 1938.

Vol. VII, Part 2.

## 70—Agricultural Gazette of New South Wales.

- a. HUNGERFORD, T. G., 1938.—“Treatment of fowls for round worm infestation.” 49 (3), 169-172; (4) 225-226.

(70a) Individual treatment of hens infected with helminths is recommended by Hungerford. He details a method of treatment with carbon tetrachloride, which is 100% effective and not toxic. The value of other drugs is considered, but none other is so efficient and so free from toxic effects as  $\text{CCl}_4$ .  
P.A.C.

## 71—Agriculture and Live-Stock in India.

- a. SEN, S. K., 1938.—“Insects in relation to disease of domesticated animals.” 8 (3), 235-244.

(71a) Sen discusses, in a semi-scientific manner, the rôle of insects as agents in the transmission of diseases of domesticated animals. Various examples of pathogenic organisms amongst the viruses, bacteria, Protozoa and helminths, including bursati and *Dipylidium caninum*, which are all transmitted by insects, are cited. The author's concluding remarks deal with the general principles underlying methods of combating disease-carrying insects.  
J.N.O.

## 72—American Journal of Digestive Diseases and Nutrition.

- a. SWALM, W. A., GAULT, E. S. & MORRISON, L., 1938.—“A rare case of primary liver carcinoma in liver fluke disease (*Clonorchis sinensis*).” 4 (12), 789-792.

## 73—American Journal of Diseases of Children.

- a. LESLIE, C. J., 1938.—“Pulmonary echinococcosis.” 55 (6), 1267-1272.

## 74—American Journal of Hygiene.

- a. SCOTT, J. A. & BARLOW, C. H., 1938.—“Limitations to the control of helminth parasites in Egypt by means of treatment and sanitation.” 27 (3), 619-648.  
b. STANNARD, J. N., MCCOY, O. R. & LATCHFORD, W. B., 1938.—“Studies on the metabolism of *Trichinella spiralis* larvae.” 27 (3), 666-682.  
c. BRAND, T. v. & OTTO, G. F., 1938.—“Some aspects of the carbohydrate metabolism of the hookworm, *Ancylostoma caninum*, and its host.” 27 (3), 683-689.



(74a) The effect of a large scale introduction of bored-hole latrines into villages in Egypt is discussed in relation to the effects on the incidence of hookworm, ascaris and bilharzial infections as compared with villages without sanitation. It was found that pronounced changes in the level of infection occurred without apparent cause. Sanitation did not cause or even maintain a lowered level of parasite infection and within 3 years there seemed to be a complete dissipation of the effect of as much treatment as the people could be persuaded to take. It is concluded that sanitation should not be restricted to the villages but should be extended also to the fields. Although the effects of therapeusis have been shown to be merely temporary it is of value in alleviating the critically ill. R.T.L.

(74b) *Trichinella* larvae digested free of rat muscle show a fairly high rate of respiration, the R.Q. being slightly above one. In addition the larvae show a fermentative type of metabolism, evidenced by the anaerobic production of carbon dioxide, and the experiments show that, at least under experimental conditions, the larvae use endogenous substrate. Rate of respiration is independent of oxygen tension above 1%, and haemoglobin (probably endogenous) is shown to be present in low concentration in the larva. Oxygen consumption is inhibited by cyanide, but stimulated by paraphenylene-diamine and carbon monoxide. The fermentative metabolism differs in several respects from that of other nematodes, and can maintain the larva alive, but respiration is necessary for activity. V.D.V.S.

(74c) Investigating carbohydrate metabolism in *Ancylostoma caninum* and its host, using 18 dogs, v. Brand & Otto found by chemical analysis that the glycogen content of the hookworms was much lower than in other intestinal helminths and was unchanged by short periods of starvation or alimentary hyperglycaemia in the host. Possibly the bloodsucking activities of the worm obviate the necessity for a fermentative type of metabolism or, being continuous, obviate storage of glycogen in the worm's body. Glycogen percentages in the muscles and livers of starved and of glucose-fed dogs showed no significant difference as between infected dogs (9) and uninfected controls (9). B.G.P.

#### 75—American Journal of Public Health.

- a. BARRETT, C. D. & SEARS, R., 1938.—“The epidemiology of trichinosis.” 28 (6), 706-717.

(75a) Barrett & Sears describe the clinical and epidemiological features of an outbreak of trichinosis involving 32 cases in Rogers City, Michigan, and in greater detail another outbreak involving 72 cases in Capac, Michigan. Trichinosis as a public health problem is discussed and suggestions for further study put forward. V.D.V.S.

#### 76—Annales de Parasitologie Humaine et Comparée.

- a. WAELE, A. DE & COOMAN, E. DE, 1938.—“Étude expérimentale de l'echinococcose secondaire.” 16 (2), 121-132.  
b. GALLIARD, H. & DANG-VAN-NGU, 1938.—“Variations saisonnières de l'évolution de *Dirofilaria immitis* chez *Aedes (Stegomyia) albopictus*.” 16 (3), 210-214.

(76a) In Flanders hydatid most commonly occurs in the horse, in which it is usually unilocular and never alveolar, and in which daughter cysts rarely occur. De Waele & De Cooman have found that white mice are readily infected by the intraperitoneal injection of scolices, but not by intratracheal or intravaginal injection. They found the rabbit completely refractory to secondary infection with horse material, though Dévé has successfully used scolices from sheep in this host; the converse is true of the white rat, and this may indicate the development of biological strains. B.G.P.

(76b) In Tonkin *Dirofilaria immitis* develops successfully in *Anopheles albopictus* and especially so in *A. aegypti*. The full development takes from 8 to 9 days during the hot season from May to September, when the temperature ranges between 24°C. and 37°C., while during the winter, with the temperature ranging from 12°C. to 18°C., a month is required. Whereas during the hot season the infection rate is 80% to 100%, during the winter the infestation is very slight. R.T.L.

### 77—Annales de la Société Belge de Médecine Tropicale.

- a. GREEF, R. DE, 1938.—“Quelques considérations sur 101 cas d'éléphantiasis ou adénolymphocèle opérés à Buta.” 18 (1), 5-39.
- b. RODHAIN, J. & GILLAIN, J., 1938.—“Présence de nodules à *Onchocerca* chez un buffle du Cap dans le Haut-Ituri.” 18 (1), 85-88.

### 78—Annals of Applied Biology.

- a. HODSON, W. E. H., 1938.—“The stem and bulb eelworm, *Anguillulina dipsaci* (Kühn), in strawberry in Britain.” 25 (2), 406-410.

(78a) Hodson describes and figures the symptoms caused by *Anguillulina dipsaci* on cultivated strawberries belonging to two varieties: “Madame Lefebvre” and “Royal Sovereign.” In the case of the first named variety the strain of the parasite appears to be very highly specialized since it would not transfer to “Royal Sovereign” or to other cultivated plants and weeds. In the case of the attack on “Royal Sovereign” the parasite appears to have transferred from diseased narcissi. In both varieties leaves, petioles and flower-stems are invaded. Infested runners may also be produced on swollen stolons. Symptoms are most apparent in spring, autumn and winter. Methods of control are discussed and the suggestion is made that on no account should runners be taken from infested plantations. T.G.

### 79—Annals of Tropical Medicine and Parasitology.

- a. GIBBINS, E. G., 1938.—“The mouth-parts of the female in *Simulium damnosum* Theobald, with special reference to the transmission of *Onchocerca volvulus* Leuckart.” 32 (1), 9-20.

(79a) Gibbins describes the mouth parts of *Simulium damnosum* and the mode and sequence in which they function during the act of biting. Their structure and mechanism is discussed in relation to the transmission of the larvae of *Onchocerca volvulus*. The enlargement by the maxillae of the initial incision made by the mandibles, which operate like a pair of scissors,



allows the microfilariae to escape from the skin. The numerous spines at the apex of the labrum-epipharynx and hypopharynx trap the microfilariae which then find their way into the food channel. J.J.C.B.

# 80—Arbeiten aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft.

- a. GOFFART, H., 1938.—“Das Problem der Nematodenkrankheit bei der Kartoffel.” 22 (3), 321-337.

(80a) Goffart shows that *Rhizoctonia solani* is not a significant factor in the production of nematode disease in the potato but that “potato-sickness” is due to nematode infestation combined with a factor of depression. The latter is possibly the result of modified metabolism of the plant brought about by nematode infection and can be partially overcome by the application of nitrogenous dressings. The starch-content of potatoes grown on infected land may be diminished. Examination of tubers by the colorimetric method frequently shows a higher pH value in tubers grown in infested than in clean land. Modifications inside the tuber are possibly due to the effect of the nematode on the fermentive processes. M.J.T.

# 81—Archiv für Wissenschaftliche und Praktische Tierheilkunde.

- a. WETZEL, R. & ENIGK, K., 1938.—“Wandern die Larven der Palisadenwürmer (*Strongylus* spec.) der Pferde durch die Lungen?” 73 (2), 83-93.
- b. WETZEL, R. & ENIGK, K., 1938.—“Zur Biologie von *Dictyocaulus arnfieldi*, dem Lungenwurm der Einhufer.” 73 (2), 94-114.

(81a) Wetzel & Enigk state that although in the rabbit, mouse and guinea-pig experimental infections show that the second moult of *Strongylus* sp. takes place in the small intestine and some migrate into the large intestine, from then the migration varies with the host and it is therefore impossible to draw conclusions as to what is the normal migration in equines. From experimental infections in equines it is concluded that no *Strongylus* larvae migrate via the liver, posterior vena cava, lymph channels, thoracic duct, right heart, lungs, trachea or pharynx. Tracheotomized and oesophagotomized horses were used in the experiments but no evidence of any blood migration was forthcoming. J.W.G.L.

(81b) Wetzel & Enigk describe the developmental stages and course of migration of *Dictyocaulus arnfieldi*. An examination of the host-parasite relationship shows that the ass is more susceptible than the horse but that an age resistance cannot be demonstrated in either host. The adult worms in the lungs cause a catarrhal bronchitis and a marked eosinophilia. They discuss the efficacy of treatment by means of intratracheal injections of potassium iodide. P.A.C.

# 82—Archives de l'Institut Pasteur d'Algérie.

- a. JOYEUX, C., SENEVET, G. & GROS, H., 1938.—“Un cas de *Cysticercus fasciolaris* chez le lapin domestique.” 16 (1), 26-30.

## 83—Boletín del Ministerio de Sanidad y Asistencia Social.

- a. RIVERA, N., 1938.—“La mortalidad infantil y la parasitosis intestinal infantil en Guatire.” Año 2, 1 (21/22), p. 1432.

## 84—Brasil-Medico.

- a. ALMEIDA RIOS, J., 1938.—“Drama abdominal agudo e verminose.” 52 (12), 291-299; (13), 320-327.  
 b. MARTINS, A. V. & VERSIANI, W., 1938.—“Schistosomose mansoni em Bello Horizonte.” 52 (20), 471-472.

(84b) An outbreak of Schistosomiasis mansoni in Bello Horizonte, Brazil, was traced by Martins & Versiani to its source in an artificial lake near the city which was used for bathing and which they found to contain infected *Australorbis glabratus*.

B.G.P.

## 85—Bulletin de l'Académie de Médecine.

- a. MAROTEL & GRATECOS, 1938.—“Apparition soudaine, en France, d'une parasitose exotique: l'amphistomose bovine. Urgence de l'enrayer.” 119 (15), 408-410.

(85a) Marotel & Gratecos point out that the finding of *Amphistomum cotylophorum* in cattle in France constitutes a first record of the appearance of this species in Europe. The authors urge that immediate steps should be taken to prevent the parasite from spreading as its effect on its hosts is as serious as that of *Fasciola hepatica*.

D.O.M.

## 86—Bulletin. Massachusetts Agricultural Experiment Station.

- a. GUBA, E. F. & GILGUT, C. J., 1938.—“Control of the begonia leaf-blight nematode.” No. 348, 12 pp.

(86a) Guba & Gilgut report that leaf-blight, caused by the nematode *Aphelenchoides fragariae* (or *A. olesistus*), in winter begonias of the varieties “Melior,” “Lady Mac” or “Marjorie Gibbs” can be successfully controlled by submerging pot plants in hot water at 121° to 120°F. for one minute, 119° to 117°F. for 2 minutes or 118° to 115°F. for 3 minutes. Treatment should be carried out at least 3 months before the marketing season so as to allow the plants to come into full leaf. Leaves selected for propagating new plants can also be given the hot-water treatment, thus ensuring clean stock. T.G.

## 87—Bulletin. Ministry of Agriculture, Egypt. Technical and Scientific Service (Mycological Section).

- a. JONES, G. H. & SEIF EL NASR, ABD EL GHANI, 1938.—“The control of eel worm disease of wheat.” No. 180, [iii] + 23 pp.

(87a) Jones & Seif El Nasr deal with the incidence of “cockle” in wheat caused by the eelworm, *Anguillulina tritici*. They give figures for the losses caused by it in different regions of Egypt in recent years and discuss various methods of cleaning seed wheat. They show that by the use of a machine called a “trieur” it is possible to clean wheat thoroughly. The “trieur” is a



hollow metal cylinder, the inner surface of which is provided with rows of hemispherical depressions. It is placed at a slight angle to the horizontal and is rotated on its long axis. Wheat to be cleaned is fed into it at the upper end and during the rotation of the cylinder the sound grains and the galls become separated and are delivered at different outlets. T.G.

#### 88—Bulletin de la Société de Pathologie Exotique.

- a. POISSON, H. & BUCK, G., 1938.—“Une épidémie de bunostomose sur des veaux zébus.” 31 (4), 322-323.
- b. CHABEUF, M., 1938.—“La chimiothérapie antistreptococcique dans les ‘filarioses’ lymphatiques au Cameroun.” 31 (5), 429-436.
- c. ANDERSON, C., 1938.—“Contribution à l'étude de la bilharziose dans la région des Matmata. (Prospection de l'Oued Djir).” 31 (6), 498-502.
- d. BACIGALUPO, J. & AGUIRRE PEQUENO, E., 1938.—“Un nouveau cas d'*Hymenolepis diminuta* chez l'homme, au Mexique.” 31 (6), 502-504.

(88a) Poisson & Buck record, for the first time, the presence of *Bunostomum phlebotomum* in Madagascar where it caused a heavy mortality in zebu calves which had been inoculated with B.C.G. vaccine. Other parasites found in this host were *Ascaris vitulorum* and *Moniezia expansa*.

D.O.M.

(88b) Chabeuf's paper is mainly concerned with the treatment of streptococcal infections of a lymphangitic type with the drug Septazine, but in the course of discussion he suggests that *Filaria* may play a part in latent scrotal infections where it may act as a vector for the streptococci. B.G.P.

#### 89—Canadian Journal of Comparative Medicine.

- a. CAMERON, T. W. M., 1938.—“Diseases common to animals and man.” 2 (5), 121-128.

#### 90—Canadian Journal of Research. Section C. Botanical Sciences.

- a. HASTINGS, R. J. & BOSHER, J. E., 1938.—“A study of the pathogenicity of the meadow nematode and associated fungus *Cylindrocarpon radiculicola* Wr.” 16 (6), 225-229.
- b. HASTINGS, R. J. & BOSHER, J. E., 1938.—“The nature of bulb nematode (*Ditylenchus dipsaci*) populations in ‘Supreme,’ ‘Prince Albert,’ and ‘Imperator’ iris bulbs, and their control by thermal treatment.” 16 (6), 230-233.

(90a) By means of a medium of peat saturated with a 0.1% solution of malachite green, Hastings & Bosher obtained oat seedlings infected with *Pratylenchus pratensis* without the usually associated fungi and bacteria. Of a number of seedlings tested oats became the most heavily infected but showed the least reduction in growth. *Cylindrocarpon radiculicola* and *P. pratensis* together caused greater growth reduction than did either alone or than the sum of the two separately. All stages of *P. pratensis* were found to enter the roots of oat seedlings. M.T.F.



(90b) Hastings & Bosher find that in the Tangerian iris "Supreme" *Ditylenchus dipsaci* multiplies more rapidly and causes more damage than in the English iris "Prince Albert" or the Dutch iris "Imperator." This may represent a varietal rather than a class distinction. The nematode population of iris bulbs is largely represented by larvae and eggs rather than by pre-adult forms as in narcissi. Immersion in water at 110°F. for 1 hour, without pre-soaking, is apparently sufficient to destroy the nematodes in the bulbs.

M.T.F.

#### 91—Canadian Journal of Research. Section D. Zoological Sciences.

- a. PARNELL, I. W., 1938.—"Studies on the bionomics and control of the bursate nematodes of horses and sheep. V. Comparisons of the lethal effects of some non-nitrogenous fertilizers on the free-living stages of sclerostomes." 16 (4), 73-88.
- b. CAMERON, T. W. M., 1938.—"Investigations on trichinosis in Canada. I. A preliminary survey of the incidence of *Trichinella spiralis* in hogs in Eastern Canada." 16 (4), 89-92.

(91a) Parnell gives results of the action of potassic, phosphoric and calcium artificial fertilizers on the free-living stages of sclerostomes. The most effective substance was kainit: one part added to 23 parts of fresh horse faeces was sufficient to sterilize the eggs. The proportion at which the others were effective was: Muriate of potash 1:17; carbonate of potash 1:13; sulphate of potash 1:5; superphosphate (20%) 1:5; superphosphate (16%) 2:5. Basic slag, raw rock phosphate and lime had little or no effect on the free-living stages of sclerostomes in fresh horse manure. J.W.G.L.

(91b) Cameron has examined portions of 729 hogs from various parts of eastern Canada by digestion, compression and iodine-stain techniques. 2.06% of these were found to be infected with living *Trichinella* larvae, and from this figure it is suggested that the incidence of human trichinosis in Canada is probably approximately the same as in the United States. V.D.V.S.

#### 92—Canadian Public Health Journal.

- a. GERVAIS, J. H., 1938.—"Trichinosis in Montreal." 29 (4), 176-179.

(92a) Gervais reports two outbreaks of trichinosis in Montreal, the first in January 1935 of 6 cases with one death, and the second in November 1935 of 68 cases with no deaths. The two outbreaks were unrelated, and the second was limited to people of German extraction using sausages containing uncooked pork, but in neither was the actual source of infection traced.

V.D.V.S.

#### 93—Chinese Medical Journal.

- a. CAMPBELL, H. E., 1938.—"Schistosomiasis and Banti's disease: an inquiry into their possible relationship." 53 (5), 459-466.

(93a) As 3 out of 13 cases operated on for splenic anaemia revealed eggs of *Schistosoma japonicum* in liver biopsy or at post-mortem, it is presumed that the splenomegaly of unknown origin described by Whyte, Maxwell and McIntosh is schistosomal. It is also suggested that Banti's original disease was of schistosomal origin owing to the proximity of Italy to Egypt. R.T.L.

## 94—Chinese Medical Journal. Supplement.

- a. HOEPPLI, R., FENG, L. C. & CHU, H. J., 1938.—“Attempts to culture helminths of vertebrates in artificial media.” No. 2, 343-374.
- b. KUBO, M., 1938.—“The daily and seasonal periodicity of *Microfilaria immitis* in the peripheral blood of the dog.” No. 2, 375-384.
- c. HSÜ, H. F. & WANG, L. S., 1938.—“Studies on certain problems of *Clonorchis sinensis*. IV. Notes on the resistance of cysts in fish flesh, the migration route, and the morphology of the young worm in the final host.” No. 2, 385-400.
- d. YAO, Y. T., WU, C. C. & JUNG SUN, C., 1938.—“The development of microfilaria of *Wuchereria bancrofti* in sandfly, *Phlebotomus sergenti* var. *mongolensis*. A preliminary report.” No. 2, 401-410.
- e. CHU, H. J., 1938.—“Certain behavior reactions of *Schistosoma japonicum* and *Clonorchis sinensis* in vitro.” No. 2, 411-417.
- f. HSÜ, H. F. & CHOW, C. Y., 1938.—“On the intermediate host and larva of *Habronema mansonii* Seurat, 1914 (Nematoda).” No. 2, 419-422.
- g. TANG, C. C., 1938.—“Some remarks on the morphology of the miracidium and cercaria of *Schistosoma japonicum*.” No. 2, 423-432.
- h. HSÜ, H. F. & CHOW, C. Y., 1938.—“Studies on helminths of fowls. I. On the second intermediate hosts of *Metorchis orientalis* and *M. taiwanensis*, liver flukes of ducks.” No. 2, 433-440.
- i. HSÜ, H. F. & CHOW, C. Y., 1938.—“Studies on helminths of fowls. II. Some trematodes of fowls in Tsingkiangpu, Kiangsu, China.” No. 2, 441-450.
- j. HSÜ, H. F. & HOEPPLI, R., 1938.—“Miscellaneous observations on ten species of parasitic nematodes.” No. 2, 451-460.
- k. KO, S. M., 1938.—“The bursa of *Nippostrongylus muris* (Yokogawa, 1920).” No. 2, 461-462.

(94a) Culture methods for nematodes which have been used by previous authors are summarized. The results of the authors' attempts to cultivate 9 parasitic species are described. While it was possible to keep both adults and immature stages of certain parasitic species alive in artificial media for a considerable period, no further development took place. R.T.L.

(94b) The periodicity of the appearance of the embryos of *Dirofilaria immitis* in the peripheral blood of dogs is not so regular and fixed as in certain other microfilarial infections. In Peiping there is a very pronounced seasonal periodicity with a maximum of microfilariae towards the end of August and the beginning of September, and a minimum between November and December. This seasonal variation corresponds with a great seasonal difference in temperature. R.T.L.

(94c) It is experimentally shown that the chance of *Clonorchis* infection through eating “raw fish congee” is less than through eating raw fish dishes. It is recommended, however, that congee should be excluded entirely from daily meals. The cysts are not killed by the addition of vinegar or sauce. Excystment in the duodenum is due to the trypsin-containing pancreatic secretion associated with the activity of the encysted larva. In cats *Clonorchis* larvae ascend the common bile duct in 4 to 7 hours after infected fish is eaten. The authors are of opinion that these flukes do not live normally in the intestine or in the gall bladder. An average of 60% of the cysts given experimentally to cats became adult in the biliary passages. Spines occur on the skin in young adults only and are shed by the 32nd day. At least 20 days are



required for the uterus to become more or less filled with eggs. In dogs, eggs appeared in the faeces for the first time on the 26th day after feeding.

R.T.L.

(94d) The embryos of *Filaria bancrofti* can develop in *Phlebotomus sengenti* var. *mongolensis* up to the "sausage" and "post-sausage" stages.

R.T.L.

(94e) Male *Schistosoma japonicum* were kept alive in diluted horse serum at 37°C. in a modified Carrel flask for 4 months 26 days, and *Clonorchis sinensis* were kept alive for 5 months. Various physiological observations are reported.

R.T.L.

(94f) Larval *Habronema* occur in considerable numbers encapsuled in the stomach wall of about 60% of the toad, *Bufo bufo asiaticus*, in the neighbourhood of Peiping. When fed to the falcon, *Gypaëtus barbatus*, these developed into *Habronema mansioni*, which occurs as a natural infection in North China.

R.T.L.

(94g) The morphology of the miracidium and cercaria of *Schistosoma japonicum* is described and Tang confirms previous observers in most respects. A few additional details are given on the structure of the cephalic glands and the muscle cells of the tail of the cercaria.

R.T.L.

(94h) Encysted cercariae of *Metorchis orientalis* and *M. taiwanensis* occur along with cysts of *Clonorchis sinensis* in the flesh and skin of the fresh-water fishes *Pseudogobio ricularis* and *Pseudorasbora parva*. A list is given of 38 species of fresh-water fishes caught in the neighbourhood of Peiping which proved negative. In addition to ducks the hawk, *Accipiter virgatus stevensoni*, was shown experimentally to be a definitive host.

R.T.L.

(94i) The following 8 trematodes are recorded from fowls in Tsing-kiangpu: *Prosthogonimus japonicus*, *Metorchis orientalis*, *M. taiwanensis*, *Opisthorchis tsingkiangpuensis* n. sp., *Hypoderaeum conoideum*, *Philophthalmus sinensis* n. sp., *Psilochasmus longicirratu*s, *Harmostomum gallinum*.

R.T.L.

(94j) A miscellaneous series of observations is given on 10 nematodes from hitherto unknown hosts or areas in China.

R.T.L.

## 95—Comptes Rendus des Séances de l'Académie des Sciences.

- a. BRUMPT, E. & URBAIN, A., 1938.—"Une curieuse épizootie vermineuse à acanthocéphales, devenue endémique à la singerie du Muséum. Mesures prophylactiques efficaces prises pour en arrêter les méfaits." 206 (25), 1927-1930.
- b. CARRÈRE, P., 1938.—"Recherches sur le cycle évolutif de trématodes de poissons." 206 (26), 1994-1996.

(95a) Brumpt & Urbain have recovered specimens of *Prosthenorchis spirula* and of *P. elegans* at post-mortem examinations of 5 lemurs and 2 sajous (*Cebus fatuellus*) from the Museum menagerie. Death was attributed in each case to the presence of the parasites in the small intestine, also in one case in the large intestine, and in another, *Lemur fulvus albifrons*, encysted in the body cavity. Although both species of helminths are indigenous to Brazil, into whose forests *Blatella germanica* has not penetrated, that insect proved to be

the intermediate host at the menagerie. A campaign to get rid of these pests by dusting with sodium fluoro-silicate, etc., is being carried on, as treatment of the infected animals has not so far proved effective. E.M.S.

(95b) Carrère describes the metacercaria of *Proserhynchus aculeatus* from the fins, skin and sub-cutaneous muscles of *Gobius minutus*, *G. jazo* and *Crenilabrus massa*. Fed to *Hyla arborea* the larvae survived 5 days without developing, but in *Gobius* spp. they grew almost to maturity. *Conger conger* in the same district harbour numerous adults. A metacercaria previously described from *Atherina mochon* and *A. hepsetus* is now identified as *Acantho-chasmus imbutiformis*. The adult is a frequent parasite of *Labrax lupus* which feeds freely on *Atherina*. Some development was shown by forms fed experimentally to *Tropidonotus natrix*. *Conger conger* harbours the adults of *Lecithochirium rufoviride*, which it acquires by eating infested *Gobius jazo* and *Crenilabrus massa*. The metacercaria forms cysts in the muscles and, more often, the abdominal viscera. When fed experimentally to *Hyla arborea* the worms show considerable development, but in *Gobius minutus* reach complete maturity. E.M.S.

#### 96—Comptes Rendus des Séances de la Société de Biologie.

- a. DÉVÉ, F., 1938.—“Au sujet de la résistance du lapin à l'inoculation du sable échinococcique de kystes hydatiques de cheval.” 128 (18), 340-342.
- b. WAELE, A. DE & COOMAN, E. DE, 1938.—“Pourquoi la résistance du lapin à l'inoculation de sable échinococcique de kystes hydatiques de cheval n'est-elle pas absolue.” 128 (19), 441-442.
- c. DÉVÉ, F., 1938.—“Echinococcose pleurale expérimentale.” 128 (19), 442-444.
- d. DÉVÉ, F., 1938.—“Pneumothorax hydatique curable suivi d'échinococcose hétérotopique de la cavité pleurale, chez le lapin.” 128 (19), 444-446.
- e. GALLIARD, H., 1938.—“L'auto-infestation au cours de la strongyloïdose humaine.” 128 (20), 572-574.

(96a) Dévé has given to rabbits subcutaneous inoculations of hydatid sand from a horse cyst, and intraperitoneal inoculations of the same material to white mice. The mice invariably developed cysts which grew and were active, but the rabbits were sometimes negative at post-mortem examinations and sometimes positive. P.A.C.

(96b) De Waele & De Cooman consider that there are biological strains within the species of hydatid. These strains they claim have different physiological reactions and this explains why Dévé's immunity experiments with horse hydatid in rabbits have not given constant results. P.A.C.

(96c) Dévé has given injections of hydatid sand into the thoracic cavity of rabbits, finding at post-mortem examination some months later small cysts on the diaphragm, in the intercostal muscles and in the lungs. One particular rabbit had a number of cysts on the surface of the lungs, as if grafted there, thereby producing a condition well-known in human pathology. P.A.C.

(96e) Galliard reports 3 cases of strongyloidiasis in which auto-infestation had occurred, doing without the phase outside the body. Conditions inside the body just before death and in cachectic patients created conditions



suitable for auto-infestation. Any resistance that had been developed as a result of the infection had been broken down.

P.A.C.

### 97—Deutsche Pelztierzüchter (Der).

- a. ENIGK, K., 1938.—“Zur Biologie des *Strongyloides* aus dem Sumpfbiber.” Year 1938. [Reprint 3 pp.]

(97a) Enigk regards *Strongyloides myopotami* as a valid species both morphologically and biologically since attempts to give the infection to a kid, and to give *S. papillosus* to the coypu, were both fruitless. Several rodents also resisted infection with *S. myopotami*. Eggs passed in the faeces hatch within a few hours and the 2 moults occur at intervals of about 24 hours, so that the infective stage is reached in  $2\frac{1}{2}$  days; there follows a prepatent period of 15 to 20 days. The cycle is always direct according to Enigk's observation, although a free-living sexual generation has been reported in S. America. Infection is percutaneous.

B.G.P.

### 98—Deutsche Tierärztliche Wochenschrift.

- a. SCHMID, F., 1938.—“Akute Distomatose und junge Dasselarven bei einem Reh.” 46 (17), p. 257.
- b. LÜHRS, E., 1938.—“Über die Einwirkung ultravioletter Strahlen auf Parasiteneier.” 46 (25), 385-386.
- c. BERNARD, 1938.—“Behandlung von Wurmerkrankungen mit Arsinosolvin Bengen und Tartarus stibiatus.” 46 (25), 386-390.
- d. FISCHER, C., 1938.—“Finnen.” 46 (25), 391-392.

(98b) Lührs has found that eggs of ascaris from the pig, and liver-fluke eggs from the gall-bladder of cattle are both killed by an exposure of less than 10 minutes to ultraviolet rays from a quartz lamp 60 cm. distant. The effect of 5 minutes' exposure is to retard development for several days in both species. The fluke eggs were covered by 3 to 5 mm. of water; when 10 mm. of water were used, 42% of eggs failed to develop, compared with 8% in the unirradiated control.

B.G.P.

(98c) Bernard reports on the treatment of sclerostomiasis with a combination of Arsinosolvin administered intravenously, and antimony tartrate *per os*. The treatment was successful in mild cases. Although all worms were not removed in heavily infected horses the treatment was always accompanied by a noticeable improvement in general condition and in many cases by disappearance of oedema.

K.S.

(98d) The German Order, allowing 10 Marks compensation to a tape-worm carrier from whose farm originates a slaughtered ox infested with cysticerci, leads Fischer to ponder wittily over defaecation habits on the farm. The privy is often distant, cold, uncomfortable, on a dung-hill or over a cesspool, and the paper is “snow-cold” and wet: what wonder that the warmth and comfort of the stable (usually close at hand) is preferred by the farmer and his family? The foremost control measure should be to make the privy more accessible and (for its purpose) more attractive than the stable: next come the duty of the carrier to get himself treated at the first sign of infection, and an extended “Verbot” against eating raw meat.

B.G.P.

## 99—Farming in South Africa.

- a. MÖNNIG, H. O., 1938.—“Tetrachlorethylene emulsion. (‘Tetram’).” 13 (145), p. 146.

(99a) Mönnig, in a popular article, describes the doses and administration of tetrachlorethylene emulsion (‘Tetram’) as a remedy for hookworms and other nematodes of sheep. Precautions necessary when using this drug are emphasized. K.S.

## 100—Folha Medica.

- a. PESSOA, S. B., 1938.—“Pesquisas sobre a ancylostomose em São Paulo. VII. Sobre a eliminação de *Necator americanus* e de *Ascaris lumbricoides* após tratamento anthelmintico.” 19 (2), 13-14.

## 101—Gazette Hebdomadaire des Sciences Médicales de Bordeaux.

- a. PAPIN, F. & DARGET, R., 1938.—“Kyste hydatique de la rate.” 59 (24), 379-380.

## 102—Geneeskundig Tijdschrift voor Nederlandsch-Indië.

- a. KARIADI, 1938.—“Oriënteerend filariaonderzoek te Martapoera (Res. Z/O. Afd. v. Borneo).” 78 (19), 1127-1138.

(102a) Investigating the epidemiology of elephantiasis and filariasis in Martapoera in relation to possible intermediaries, Kariadi has found that certain very common mosquitoes are filaria carriers. Thus, in *Mansonia (Mansonioides) uniformis* natural and experimental filarial indexes of 5.9% and 100% respectively were found, while the corresponding values for *M. (M.) annulifera* were up to 21% and 94%, and for *Anopheles barbirostris* 6.9% and 100%. The kampongs with the highest human parasite indexes (40 to 50%) also showed the highest incidence of elephantiasis (0.66 to 0.73%). B.G.P.

## 103—Indian Journal of Veterinary Science and Animal Husbandry.

- a. SRIVASTAVA, H. D., 1938.—“Helminthology in relation to veterinary science.” 8 (2), 113-118.  
 b. RAO, M. A. N., 1938.—“*Dipetalonema dracunculoides* (Cobbold, 1870).” 8 (2), 127-130.  
 c. RAO, M. A. N., 1938.—“*Poteriostomum ratzi* (Kotlan, 1919).” 8 (2), 131-132.  
 d. BHALERAO, G. D., 1938.—“Schistosomes and schistosomiasis in India.” 8 (2), 149-157.

(103b) The adults of *Dipetalonema dracunculoides* have been found in India for the first time by Rao. A brief description is given. The embryos previously reported as *Haematozoon lewisi* by Rao and *Microfilaria lewisi* by Korke are believed to belong to this species. R.T.L.

(103c) Rao records the occurrence of *Poteriostomum ratzi* and *P. imparidentatum* from a hackney pony in Madras. *P. ratzi* had not been previously noted in India. R.T.L.

(103d) [This paper is reprinted from the Skrjabin Festschrift, 1937, pp. 47-54. For abstract see Helm. Abs., Vol. VI, Part 5.]



**104—Indian Medical Gazette.**

- a. FRASER, G., 1938.—“*Pistia stratiotes* and *Mf. malayi*.” [Correspondence.] 73 (4), p. 255.
- b. MAPLESTONE, P. A. & MUKERJI, A. K., 1938.—“The treatment of ascariasis.” 73 (6), 326-328.
- c. ROY, S. C., 1938.—“*Bertiella studeri*, a natural tape-worm parasite of monkeys, in a Hindu child.” 73 (6), p. 346.

(104a) In Assam the eradication of the plant *Pistia stratiotes* would not effect the control, as elsewhere, of the *Mansonioides* spp. which are the carriers of *Microfilaria malayi*, for the mosquito larvae abound where water hyacinth and the “dol” or sedge grass occur. Moreover *Anopheles hyrcanus* var. *nigerrimus* is almost a 100% carrier of *Mf. malayi* in certain endemic areas of Assam.

R.T.L.

(104b) Continuing previous work on the efficacy of a combination of santonin and oil of chenopodium on ascariasis, Maplestone & Mukerji give their results in a series of cases from which it would appear that the reduction in the amount of santonin has little effect compared with that which follows a reduction in the amount of chenopodium.

R.T.L.

**105—Journal of the American Medical Association.**

- a. ALICATA, J. E. & SCHATTENBURG, O. L., 1938.—“A case of intestinal heterophyidiasis of man in Hawaii.” 110 (14), 1100-1101.
- b. FERENBAUGH, T. L., SEGAL, L. & SCHULZE, H. A., 1938.—“A trichinosis epidemic of sixty-four cases.” 110 (18), 1434-1436.

(105a) A first case of heterophyid fluke infection of man is reported from Hawaii. The species is *Stellantchasmus falcatus*. Local mullets, *Mugil cephalus*, were found infested with metacercariae and by feeding these to cats, adult flukes were obtained. The case was apparently cured by oleoresin of aspidium.

R.T.L.

(105b) A preliminary account is given of the clinical and epidemiological findings in an epidemic of 64 cases of trichinosis in a Civilian Conservation Corps Camp at Waterbury, Vermont. The average incubation period was 12.4 days, the minimum 3 and the maximum 20 days; biopsies showed 8 to 800 living larvae per g. muscle. Bachman intradermal tests showed a dependable accuracy.

V.D.V.S.

**106—Journal of the American Veterinary Medical Association.**

- a. OLSEN, O. W., 1938.—“Anoplocephaliasis in Minnesota horses.” 92 (4), 557-559.
- b. LIVE, I. & STUBBS, E. L., 1938.—“The diagnosis of filariasis in the dog.” 92 (5), 686-690.
- c. PRITCHETT, H. D., 1938.—“Lung worms in a kitten.” 92 (5), 692-694.

(106a) Olsen records *Anoplocephala magna* from the small intestine of a colt and comments on its infrequency in Minnesota. He summarizes references to the occurrence of this and related worms in Canada and the United States and discusses life-histories.

J.W.G.L.

(106b) Live & Stubbs show by comparative microfilarial counts of blood samples from dogs that by examining the sediment of centrifuged diluted samples of serum a higher larval count is obtained, and light infections were more easily visible than with the usual method of using whole blood. The 25 infected dogs examined showed that the serum concentration method revealed  $2\frac{1}{2}$  times as many larvae as the whole blood concentration method. The technique is described in detail. The measurements of the microfilaria are given at  $280\mu$  by  $5\mu$  and a comparison made with *Ancylostoma caninum* larvae at  $610\mu$  by  $26\mu$ . J.W.G.L.

(106c) Pritchett gives the clinical history and the pathologist's report of a case of *Aelurostrongylus abstrusus* causing chronic pneumonia and death in a kitten. J.W.G.L.

### 107—Journal of the Egyptian Medical Association.

- a. KHALIL, M. & AZIM, M. A., 1938.—“Further observations on the introduction of infection with *Schistosoma haematobium* through the irrigation schemes in Asswan Province.” 21 (3), 95-101.
- b. KHALIL, M. & AZIM, M. A., 1938.—“On the history of the antibilharzial campaign in the Dakhla Oasis.” 21 (3), 102-106.
- c. SALAH, M., 1938.—“Studies on anaemias in Egypt. No. VI. Haemoglobin regeneration in hypochromic anaemias.” 21 (3), 107-117.
- d. AZIM, M. A., 1938.—“On the intestinal helminths of dogs in Egypt.” 21 (3), 118-122.
- e. HASSAN, A., 1938.—“The distribution of antimony in the body organs following the administration of therapeutic antimony.” 21 (3), 123-125.
- f. HASSAN, A., 1938.—“A quantitative study of the excretion of antimony. Part II.” 21 (3), 126-130.
- g. KHALIL, M., 1938.—“*Cleistogamia loutfia* (Khalil et Azim, 1937) Khalil, 1937; a redescription.” 21 (5), 285-287.

(107a) In 1934 about 50,000 acres of land were converted from basin to perennial irrigation in the Asswan Province. Early in 1937 all the canals leading from the Ramady pumping station in the direction of Edfu were found to harbour *Bulinus* snails in large numbers and 20% of those examined were infected with schistosome cercariae. 100 boys from the local schools gave an infection rate of 75% of *S. haematobium* in the urine. A map giving the distribution of infection in the whole area shows that the variation in the rate of incidence depends on the proximity of the population to polluted canals. Comparative rates are given of the infection seen in 1934 and 1937 in Sebaia, Kilh, Mansouria and Bimban and show the intimate connection between the mode of irrigation and the spread of the disease. R.T.L.

(107b) In 1925 Khalil reported the successful eradication of bilharziasis in the Dakhla Oasis. The present account brings the position up-to-date. In 1928 of 244 cases previously treated with tartar emetic 34% had living ova in their urine, while 71% of 472 untreated cases were positive. The previously treated stream was now found to harbour large specimens of *Bulinus*. In 1929 the main canal was filled up and the infected streams treated with copper sulphate. Visits in 1930, 1931 and 1932 failed to discover any living *Bulinus* in the previously infected streams. The position remained unchanged in 1936, but *Melania tuberculata* and *Limnaea truncatula* were found. Of 69



cases treated in 1926 and 1928 37% were then found infected. Of 220 cases treated in 1928 32% were infected; the relapse rate being about 34.5%. Of 70 children born after the last campaign in 1929 none were infected.

R.T.L.

(107c) Salah has studied the degree and rate of haemoglobin regeneration in ancylostome anaemia associated or otherwise with the presence of other morbid conditions.

R.T.L.

(107d) 150 dogs from Cairo, 100 from Alexandria and 70 from different villages in Upper Egypt were examined for helminths. A list of the various species found and a table of incidence rates are given. *Echinococcus granulosus* shows an incidence of 10% in Upper Egypt but only 3% in Cairo and 2% in Alexandria. 75% of the Alexandrian dogs harboured Heterophyidae. In Cairo the incidence was 59%. Fish consumed in Cairo is imported from Alexandria or Lake Manzala. In Upper Egypt the only trematodes found belonged to the genus *Haplorchis*.

R.T.L.

(107e) In the treatment of schistosomiasis with antimony a certain number of patients die suddenly during or very shortly after the completion of the course of treatment. Hassan has attempted to determine the distribution of antimony in dogs and monkeys injected with Fouadin, and shows in a detailed table that the largest amount of antimony occurs in the liver.

R.T.L.

(107f) As the Fouadin used in the author's previous experiments [see Helm. Abs., Vol. VI, Part 5] on the excretion of antimony had undergone oxidation to the pentavalent form, the work has been repeated. The conclusions reached are (i) that the hourly excretion of antimony is the same following Fouadin or tartar emetic, (ii) in the first 24 hours the excretion of antimony following a single injection is practically the same in patients with normal and disturbed kidney function.

R.T.L.

## 108—Journal of Experimental Biology.

- a. DAVEY, D. G., 1938.—“The respiration of nematodes of the alimentary tract.” 15 (2), 217-224.

(108a) Davey has carried out experiments on the respiration of nematodes obtained from the alimentary canal of sheep. Complete absence of oxygen killed *Ostertagia circumcincta*, *Trichostrongylus colubriformis*, *T. vitrinus*, *Cooperia curticei*, *C. oncophora*, and *Nematodirus filicollis* in 24 to 48 hours. This, and other evidence presented, supports the view that the metabolism of nematodes of the alimentary tract is aerobic.

R.H.H.

## 109—Journal of Helminthology.

- a. HURST, R. H., 1938.—“Pot experiments on the chemical treatment of soils infected with the potato and oat strains of *Heterodera schachtii*.” 16 (2), 61-66.
- b. FRANKLIN, M. T., 1938.—“Experiments with cysts of the potato eelworm (*Heterodera schachtii*) of different ages.” 16 (2), 67-76.
- c. LEIPER, J. W. G. & CLAPHAM, P. A., 1938.—“Some nematode parasites found in Chinese water deer (*Hydropotes inermis*), with a description of *Trichostrongylus cervarius* n. sp.” 16 (2), 77-82.

- d. VAN SOMEREN, V. D., 1938.—“Eosinophilia and the differential blood count in trichinosis of the rat.” 16 (2), 83-92.
- e. GOODEY, T., 1938.—“Observations on *Anguillulina millefolii* (Löw, 1874) Goodey, 1932, from galls on the leaves of yarrow, *Achillea Millefolium* L.” 16 (2), 93-108.
- f. GOODEY, T., 1938.—“Some observations on the nematode *Hexatylus viviparus* Goodey, 1926.” 16 (2), 109-116.
- g. BUCKLEY, J. J. C., 1938.—“On a dermatitis in Malays caused by the cercariae of *Schistosoma spindale* Montgomery, 1906.” 16 (2), 117-120.

(109a) Hurst finds that dilute solutions of calcium cyanamide kill *Heterodera schachtii* larvae more rapidly when slightly acid. In pot experiments a dressing of 10 cwt. per acre acetic acid (as pyroligneous acid) + 10 cwt. per acre calcium cyanamide was more effective in preventing cyst formation than one of 20 cwt. per acre calcium cyanamide alone. He concludes that acetic acid might be worth further trial. A comparison of powdered with granular calcium cyanamide shows the former to be the more effective in preventing infection in potatoes grown in pots: there was no difference in yield of potatoes. Dressings of 1, 2, 3, 4 and 5 tons per acre of calcium cyanamide were used in pot experiments with soil infected with the oat strain of *H. schachtii*. A satisfactory growth of oats resulted when the pots had been heavily watered and no cysts were formed with dressings of 2 tons or more per acre. Hurst concludes that probably a large dressing of calcium cyanamide in the autumn would increase the yield of oats on oat-sick land, but that no lasting benefit could be expected without improvement in the present field-scale methods of mixing chemicals with soil. M.T.F.

(109b) Franklin finds that the infection of potato roots by larvae of *Heterodera schachtii* is more rapid and heavier in the presence of cysts of a minimum age of one year, than when the cysts have been dormant in the soil for 2 or more years. Infection caused by cysts from 2 to 8 years old was approximately similar in all cases tested. It is suggested that the delay in attack by larvae from the older cysts might be sufficient in some cases to enable the plant to grow without showing signs of sickness although heavily infected. M.T.F.

(109c) From 24 specimens of Chinese water deer, bred in the Whipsnade Park of the Zoological Society of London, Leiper & Clapham collected 14 species of nematodes all of which are new records for this host. One species is described as new, viz., *Trichostrongylus cervarius* n. sp. The other forms are known to occur in ruminants, but *Ostertagia lyrata* and *O. grühneri* are recorded from England for the first time. R.T.L.

(109d) van Someren shows that there is a rise in the neutrophile count and a decrease of lymphocytes in rats soon after infection with trichinosis. Probably due to a mobilisation of eosinophiles in the intestinal mucosa, there appears to be an eosinopenia in the circulating blood, though 7 to 16 days after infection an eosinophilia appears. The degree of eosinophilia varies with the host animal and is no index of the degree of infection. P.A.C.

(109e) Goodey describes and figures the adults of *Anguillulina millefolii* which gives rise to galls on yarrow leaves. In studying the life-cycle of the parasite he has found that in the earliest galls to appear in May there are

generally 1 or 2 adults of each sex per gall, but from July to September galls contain adults of 2 sizes, i.e., a few larger forms which are adults of the 1st generation, and more numerous smaller forms, adults of the 2nd generation. In addition there are numbers of infective larvae and eggs. The infective larvae are resistant to desiccation. Symptoms and the pathology of gall-formation are briefly described. Hosts and geographical distribution of the parasite are given.

T.G.

(109f) Goodey shows that in *Hexatylus viviparus* the mouth spear has 3 basal swellings each of which has a median hollow on its outer face which gives it a bi-lobed appearance. He has found that the worms from a diseased gladiolus corm can be cultivated on malt extract agar in association with a fungus and considers that they are not true parasites. The view is advanced that *Neotylenchus abulbosus* should be considered as identical with *Hexatylus viviparus*.

T.G.

(109g) A skin infection called by the Malays "sawah itch" and associated with padi-cultivation has been shown by Buckley to be due to the cercaria of *Schistosoma spindale*.

R.T.L.

# 110—Journal of Infectious Diseases.

- a. SARLES, M. P., 1938.—"The in vitro action of immune rat serum on the nematode, *Nippostrongylus muris*." 62 (3), 337-348.

(110a) Sarles has examined the behaviour of preparasitic and infective larvae of *Nippostrongylus muris* when kept in saline and in various sera. Sera known to contain antibodies were obtained from infected rats and normal sera from clean rats. Larvae lived longer in sera than in saline, there being little difference to be observed between normal and immune sera. Infective larvae underwent some development in serum but those in immune sera showed less development and decreased activity, and formed precipitates

P.A.C.

# 111—Journal of Laboratory and Clinical Medicine.

- a. DICKMAN, A., 1938.—"Trichinosis: distribution of *Trichinella spiralis* in pork products sold in Philadelphia." 23 (7), 671-680.
- b. SCHAPIRO, M. M., CROSBY, B. L. & SICKLER, M. M., 1938.—"The correlation of clinical diagnosis and postmortem findings in trichinosis." 23 (7), 681-687.

(111a) Dickman has examined by the digestion technique 64 samples of pork chops, 63 samples of fresh country sausage and 23 samples of fresh Italian sausage obtained over the counter at representative stores in Philadelphia, these constituting the products of 20 producers. Living *Trichinella* larvae were found in 11 to 33% of the country sausage and chop samples examined from 4 of the 20 producers; the larvae were in small numbers only in the sausage samples, indicating the dilution effect of the processing methods where the meat from several hogs is mixed, but this also leads to a high proportion of sausages being infective. The methods necessary to rectify this dangerous state of affairs are discussed.

V.D.V.S.



(111b) Four hundred patients of various nationalities have been tested with the Bachman intradermal test in the Gallinger Municipal Hospital, Washington, D.C., and 30% of these patients subsequently examined post mortem for evidence of trichinosis; the results show that a close correlation exists between the skin test findings and the post-mortem findings, but that the skin test may be more useful as a negative rather than a positive measure. A higher degree of eosinophilia is generally associated with the stronger skin reactions. The authors therefore consider the Bachman intradermal test to be of definite diagnostic value. V.D.V S.

### 112—Journal of the Ministry of Agriculture. London.

- a. PETHERBRIDGE, F. R., STAPLEY, J. H. & THOMAS, I., 1938.—“The beet eelworm (*Heterodera schachtii*, Schmidt.)” 45 (3), 225-236.

(112a) Petherbridge, Stapley & Thomas give an outline of the life-history of *Heterodera schachtii*, describe the damage caused by its attack on sugar-beet and enumerate the hosts which they have found to be attacked by the beet strain. It is pointed out that cysts of the eelworm may be carried in soil adhering to implements and to beet and in small lumps of soil included with beet or mangold seed. Attacks due to this strain of *H. schachtii* have been recorded in Cambridgeshire, Norfolk, Bedfordshire, Lincolnshire and Dorset. From counts of the numbers of eelworm eggs in the soil of a number of fields during 3 years it is concluded that where the eelworm is present it is much increased by the growth of a crop of sugar-beet and that susceptible crops must be omitted for several years before the numbers of viable eelworms are reduced sufficiently for a beet crop to be grown safely. Recommended control measures are the omitting of susceptible crops, i.e., sugar-beet, mangolds, beetroot, spinach, turnips, swedes and cruciferous crops for at least 5 years from beet-sick land and for 3 years from lightly infected land, and care to prevent infection from spreading to clean land. M.T.F.

### 113—Journal of Oriental Medicine.

- a. TERADA, B. & SAI-RYO, 1938.—“On the acting substance from the new anthelmintic ‘Raigan’ in teniasis and its acting mechanismus.” 28 (6), 1181-1184. [In Japanese: English summary p. 91.]

(113a) Terada & Sai-Ryo have succeeded in isolating the active principle of “Raigan,” and report that it has a proteolytic action on tapeworms. It proved efficacious in 10 cases of taeniasis when given in doses of 0.3 g. 3 times daily for 3 days. K.S.

### 114—Journal of Parasitology.

- a. HUNNINEN, A. V. & WICHTERMAN, R., 1938.—“Hyperparasitism: a species of *Hexamita* (Protozoa, Mastigophora) found in the reproductive systems of *Deropristis inflata* (Trematoda) from marine eels.” 24 (2), 95-101.
- b. LLOYD, L. C., 1938.—“Some digenetic trematodes from Puget Sound fish.” 24 (2), 103-133.
- c. CHEATUM, E. L., 1938.—“*Tanaisia pelidnae* n. sp. and *Orchipedium tracheicola* (Trematoda).” 24 (2), 135-141.

- d. OLIVIER, L., 1938.—“A new trematode, *Allassogonoporus marginalis*, from the muskrat.” 24 (2), 155-160.
- e. BOUGHTON, D. C., BYRD, E. E. & LUND, H. O., 1938.—“Microfilarial periodicity in the crow.” 24 (2), 161-165.
- f. WANTLAND, W. W., 1938.—“Effect of irradiated ergosterol on trichinized white rats.” 24 (2), 167-175.
- g. YEN, C. H., 1938.—“Studies on *Dirofilaria immitis* Leidy, with special reference to the susceptibility of some Minnesota species of mosquitoes to the infection.” 24 (3), 189-205.
- h. OLSEN, O. W., 1938.—“A new species of trematode, *Diasia podilymbae* (Opisthorchiidae), from the pied-billed grebe, *Podilymbus podiceps* (Linn.).” 24 (3), 215-218.
- i. AMEEL, D. J., 1938.—“The morphology and life cycle of *Euryhelms monorchis* n. sp. (Trematoda) from the mink.” 24 (3), 219-224.
- j. ROTH, H., 1938.—“On the localization of adult trichinae in the intestine.” 24 (3), 225-231.
- k. GRAHAM, G. L., 1938.—“Studies on *Strongyloides*. III. The fecundity of single *S. ratti* of homogenic origin.” 24 (3), 233-243.
- l. REYNOLDS, B. D., 1938.—“*Brachylaemus peromysci* n. sp. (Trematoda) from the deer mouse.” 24 (3), 245-248.
- m. SHELDON, A. J., 1938.—“Studies on the life cycle of *Maritrema medium* (Trematoda) and a redescription of the species.” 24 (3), 259-262.
- n. CORT, W. W. & BRACKETT, S., 1938.—“A new strigeid cercaria which produces a bloat disease of tadpoles.” 24 (3), 263-271.
- o. McMULLEN, D. B., 1938.—“Observations on precocious metacercarial development in the trematode superfamily Plagiorchioidea.” 24 (3), 273-280.

(114a) Hunninen & Wichterman found a new species of *Hexamita*, of which they give the morphological characters, in the eggs, oviduct, uterus and seminal receptacle of *Deropristis inflata*. They were frequently present in large numbers and in some individuals all the eggs were infected, and up to 100% of the trematodes per host contained flagellates. Other trematodes present in the eels were not parasitized. Heavily parasitized eggs failed to develop miracidia. M.J.T.

(114b) Lloyd describes *Opecoelina theragrae* n. sp., *Genolinea robusta* n. sp., *G. manteri* n. sp. and *Parahemiurus platichthyi* n. sp. He gives notes on the occurrence and distribution of 10 other species, all from fishes, including salmon, of this Pacific coast region. E.M.S.

(114c) A new species of trematode from the kidney of the red-backed sandpiper *Pelidna alpina-sakhalina* is named *Tanaisia pelidnae* n. sp. A brief account is given of the Eucotylidae and the generic diagnosis of *Tanaisia* is modified. *Orchipedium tracheicola* is reported from the trachea of the scoter *Oidemia fusca deglandi*, and the family Orchipediidae is briefly reviewed. R.T.L.

(114d) A trematode from the muskrat, *Ondatra zibethica*, is described and named *Allassogonoporus marginalis* n. g., n. sp. It is tentatively placed in the Lecithodendriidae although it has some similarities to the genera of the Troglotremitidae. R.T.L.

(114e) In the crow *Corvus brachyrhynchos brachyrhynchos* the activity of the host is sharply related to the behaviour of the filarial embryos in the peripheral circulation. Reversal of nocturnal periodicity is easily effected. The hypothesis of cyclic parturition is being investigated on this material. R.T.L.

(114f) Rats infected with 1,200 *Trichinella* larvae and treated with 40 to 50 drops of irradiated ergosterol per day from the 54th day after infection showed calcification of the cysts as early as 127 days after infection. Larger doses of infective larvae and larger doses of ergosterol resulted in death, and the nature of the toxic factor in ergosterol, the effect of which is dependent on the amount fed, is discussed. Calcification of cysts in rats, however, is not so markedly accelerated by this oral treatment as in rabbits. V.D.V S.

(114g) Yen has made experimental studies to determine the susceptibility of local species of mosquitoes in Minnesota, U.S.A., to infection by *Dirofilaria immitis*. A high intensity of infection occurred in *Anopheles maculipennis* and *A. punctipennis*. Filarial development was normally completed in *Culex territans*, *C. tarsalis* and *C. pipiens*, but the intensity of infection was low. In *Aedes vexans* there was an infection rate of 100% and an intensity of about 40 larvae per mosquito but some of the larvae died from encapsulation in the sausage stage or the infective stage. *Aedes stimulans*, *A. cinereus* and *A. canadensis* were somewhat less susceptible. In all 12 local species proved susceptible in varying degree although so far canine filariasis has not been reported for Minnesota. R.T.L.

(114i) *Euryhelminis monorchis* n. sp. is a small heterophyid with one testis which is transitory and there is no seminal vesicle. The first intermediary is the snail *Pomatiopsis lapidaria*. Tadpoles and frogs serve as second intermediate hosts. The mature worms occur in nature in minks and experimentally in rats and cats. R.T.L.

(114j) From an examination of the mucosa of the guts of over 50 experimentally infected guinea-pigs, Roth has found that the large majority of adult *Trichinella* occur in the posterior end of the small intestine, throughout the caecum and at the commencement of the large intestine. In guinea-pigs the longevity of these worms ranges from 30 to 55 days and the length of the worms may ultimately attain 2.2 mm. in males and 4.8 mm. in females. R.T.L.

(114k) The daily progeny production of 3 sister *Strongyloides ratti* has been studied in sister rat hosts. Daily variations in output as well as a striking similarity in total output are recorded. R.T.L.

(114m) Sheldon confirms experimentally the suggestion of Van Cleave & Mueller (1934) [see Helm. Abs., Vol. III, No. 686a] that crayfish are second intermediate hosts of *Maritrema medium*. Metacercariae occur in the main shafts only of the gills of *Cambarus virilis* and *C. propinquus*. Feeding to fishes and birds gave negative results, but laboratory mice were readily infected experimentally although only few worms were obtained after the feeding of large numbers of cysts. R.T.L.

(114n) In Douglas Lake, Michigan, a new species of cercaria named *Cercaria ranae* n. sp. develops into a diplostomulum in tadpoles. When infection is intense the tadpoles become bloated and death may result. The first intermediate hosts are *Stagnicola palustris elodes*, *S. emarginata angulata* and *S. exilis*. The definitive host could not be determined experimentally. R.T.L.



(114 o) Several instances of precocious development of larval trematodes have been studied by McMullen. Some were normal metacercariae, others did not encyst and showed concretions within the excretory bladder, while others resembled young adults. The approaching senility of the snails and the infections appeared to play some part in causing these changes. R.T.L.

### 115—Journal of Pathology and Bacteriology.

- a. SHAW, A. F. B. & GHAREEB, A., 1938.—“The pathogenesis of pulmonary schistosomiasis in Egypt with special reference to Ayerza's disease.” 46 (3), 401-424.

(115a) Shaw & Ghareeb found pulmonary lesions due to ova of schistosomes in 33% of 282 autopsies on Egyptians. *S. haematobium* was almost twice as common as *S. mansoni* (diagnosis by maceration in KOH, since microscopic sections are often misleading), but *S. mansoni* was more frequently associated with vascular lesions. Adult worms (both species) were found in 10.5% of the pulmonary cases. Ova reach the lungs as emboli and cause an acute necrotising arteriolitis, following which the ovum escapes through the vessel wall and becomes the centre of a parenchymatous tubercle. Necrosis is ascribed to a toxin dialysing through the shell and, since thrombosis never occurs, the ovum probably also secretes an anticoagulant. In later cases an obliterative arteriolitis due to intimal hypertrophy follows healing of the acute lesions, the occluding tissue then becoming canalized. Hypertrophy of the new capillaries may lead to a characteristic structure here named “angeiomatoid” which differs from the canalized thrombus in the absence of the encircling media. Medial hypertrophy, however, occurs proximally to the angeiomatoids and thickened arterioles. The latter, in severe cases, may cause increased intrapulmonary blood pressure leading to the hypertrophied right ventricle characteristic of Ayerza's disease. Case reports, microphotographs and coloured drawings illustrate the paper. B.G.P.

### 116—Journal of Tropical Medicine and Hygiene.

- a. CAWSTON, F. G., 1938.—“Unsuccessful attempts at curing schistosomiasis by oral tablets.” 41 (7), 118-119.  
b. DASSANAYAKE, W. L. P., 1938.—“A preliminary note on filariasis in Ceylon, 1936-1937.” 41 (9), 141-143.  
c. CAWSTON, F. G., 1938.—“Molluscs which serve as hosts for schistosomes in Mozambique.” 41 (11), 181-182.

(116b) In a survey of the North Western Province of Ceylon the author recognized 577 cases with clinical signs and symptoms of filariasis. 272 showed elephantiasis, 305 lymphangitis and 333 adenitis. The distribution was very uneven and mainly restricted to villages situated by the tanks, which are heavily stocked with *Pistia* plants, and along certain streamlets. Of 4,356 persons examined 30% were positive for microfilariae. The 1,200 positive cases were of the *Mf. malayi* variety. Natural infections occurred in *Mansonia* spp. which were found in the infected villages in large numbers.

R.T.L.

## 117—Journal of the Washington Academy of Sciences.

- a. PRICE, E. W., 1938.—“North American monogenetic trematodes. II. The families Monocotylidae, Microbothriidae, Acanthocotylidae and Udonellidae (Capsaloidea).” 28 (3), 109-126; (4), 183-198.

(117a) Price reviews the systematic classification of the whole of the Capsaloidea with the exception of the family Capsalidae. All North American species are redescribed either from original or from fresh material. The first part of the paper deals with the Monocotylidae. New names include *Heterocotyle floridana* n. comb., *H. minima* n. comb., *Dasybatotrema dasybatis* n. comb., *Thaumatocotyle dasybatis* n. comb., *Dionchus remorae* n. comb. The second part deals with the Microbothriidae (no new names), the Acanthocotylidae with *Acanthocotyle williamsi* n. sp., and the Udonellidae (no new names).  
E.M.S.

## 118—Lingnan Science Journal.

- a. LI, L. Y., 1938.—“A new trematode (Trematoda : Lecithodendriidae) from the frog, *Rana rugulosa*.” 17 (2), 221-226.

(118a) Li describes, and differentiates from other species in the same genus, *Ganeo lingnanensis* n. sp., a frequent intestinal parasite of *Rana rugulosa* in Canton and Amoy. He gives a key to the 6 species and 2 varieties of *Ganeo* now known.  
E.M.S.

## 119—Mededeelingen van den Dienst der Volksgezondheid in Nederlandsch-Indië.

- a. BRUG, S. L., 1938.—“*Filaria bancrofti*-overbrengers op Kabaena.” 27 (1/2), 88-97.  
b. MARJITNO, M. & ESSED, W. F. R., 1938.—“De ontwikkeling van *Dracunculus medinensis* in cyclops van Java.” 27 (1/2), 141-146.

(119a) Brug finds that the development is retarded in some species of mosquitoes and discusses what degree of retardation can be regarded as normal for a suitable vector of the parasite. Complete development occurs in *Anopheles barbirostris*, *A. aconitus*, *Culex fuscocephalus*, *C. whitmorei*, *C. fatigans*, *C. alis* and *C. vishnui*, *C. annulirostris* and probably *Anopheles maculatus*. *C. alis* and *C. vishnui* could often not be distinguished after having been kept in captivity for a long time. The natural infection index of mosquitoes was surprisingly low in comparison to the 20% infection of the population.  
H.M.

(119b) Details of artificial infection of Cyclops with *D. medinensis* larvae are given. A young *Macacus cynomolgus* could not be infected by giving 9 larvae. All cases so far reported in Java had been imported from Arabia.  
H.M.

## 120—Medizinische Klinik.

- a. KAUFMANN, W., 1938.—“Über Wurmerkrankungen.” 34 (24), 810-811.

(120a) Kaufmann briefly discusses the high incidence of ascariasis (in one quarter of the population in some parts) and oxyuriasis (eggs are found

in two thirds of all appendicectomies) in the Freiburg district. He finds a percaïn and menthol ointment useful in relieving itching due to oxyuris, and thereby helpful in preventing re-infection.

B.G.P.

### 121—Münchener Medizinische Wochenschrift.

- a. SOGEMEIER, E., 1938.—“Ueber eine neue Behandlung der Trichinose mit Kalzium.” 85 (18), 669-671.
- b. MARANGOS, G., 1938.—“Beitrag zum familiären Auftreten der Echinokokkenkrankheit.” 85 (22), 830-833.

(121a) Sogemeier describes 3 cases of trichinosis cured by 3 to 7 intravenous injections of 5 c.c. Gluco-calcium (Lilly) given during the acute stages of the disease. The treatment appears to be specific, and has a very favourable effect on the pyrexia and intestinal and muscular symptoms.

V.D.V.S.

(121b) Marangos records from Greece an extraordinary case of familial infection with hydatid, traced to a single dog. At the time of his writing, father, mother and two daughters had died of the infection and the two surviving sons gave a bad prognosis. A feature of all the cases was the rapid malignant course of the disease and the massive infection of the liver with cysts of various sizes.

B.G.P.

### 122—Nachrichtenblatt für den Deutschen Pflanzenschutzdienst.

- a. GOFFART, H., 1938.—“Neuere Forschungsergebnisse zur Kenntnis blattbewohnender Aphelenchen (Nematoden).” 18 (6), 51-52.

(122a) Goffart discusses the difficulty of differentiating the 3 species of *Aphelenchoides*, namely, *A. fragariae*, *A. ritzema-bosi* and *A. olesistus*, and the suggestion of their being considered as physiological races of one and the same species, *A. fragariae*. He cites the results of certain cross-infection experiments carried out by him in which the chrysanthemum eelworm was established in begonias but failed to infect strawberries, 2 species of *Primula*, *Pelargonium*, *Crassula* and *Hydrangea*. The results of other workers on similar lines are dealt with.

T.G.

### 123—New Zealand Journal of Agriculture.

- a. McILWAINE, J. E., 1938.—“Parasites of the pig in New Zealand.” 56 (4), 303-309.

(123a) McIlwaine gives a popular description of the parasites of pigs in New Zealand. The helminths common to the country are described briefly and the life-histories, control measures and treatments outlined.

J.W.G.L.

### 124—North American Veterinarian.

- a. McLEAN, B. C., 1938.—“Equine strongylosis.” 19 (4), 29-33.

(124a) McLean gives a popular description of the causal parasites, diagnosis and treatment of strongylosis in the horse from a practitioner's viewpoint. Some of the literature is reviewed and personal observations included.

J.W.G.L.



## 125—Oesterreichische Tierarzt (Der).

- a. SCHUBERT, F., 1938.—“Sclerostomiasis im Leben des praktischen Tierarztes.” 11 (2), 15-18.

(125a) Schubert stresses the importance of sclerostomes in causing disease in horses. The clinical picture, differential diagnosis and the treatment adopted are described and illustrated with examples of cases encountered.

J.W.G.L.

## 126—Parasitology.

- a. SANG, J. H., 1938.—“The antiproteolytic enzyme of *Ascaris lumbricoides* var. *suis*.” 30 (2), 141-155.  
 b. CULBERTSON, J. T. & KAPLAN, S. S., 1938.—“A study upon passive immunity in experimental trichiniasis.” 30 (2), 156-166.  
 c. CHAKRAVARTY, G. K., 1938.—“On a nematode, *Pseudaspidodera jnanendrae* n. sp., from the peafowl (*Pavo cristatus*).” 30 (2), 167-170.  
 d. PODDER, T. N., 1938.—“A new species of Acanthocephala, *Acanthosentis dattai* n. sp., from a fresh-water fish of Bengal, *Barbus ticto* (Ham. & Buch.) and *B. stigma* (Cuv. & Val.).” 30 (2), 171-175.  
 e. DAVEY, D. G. & WOOD, W. A., 1938.—“New species of Trichoneminae (Nematoda) from Australian kangaroos.” 30 (2), 258-266.  
 f. EKBAUM, E., 1938.—“Notes on the occurrence of Acanthocephala in Pacific fishes. I. *Echinorhynchus gadi* (Zoega) Müller in salmon and *E. lageniformis* sp. nov. and *Corynosoma strumosum* (Rudolphi) in two species of flounder.” 30 (2), 267-274.

(126a) Sang has carried out experiments *in vitro* on the watery extract of *Ascaris* and has shown that this contains a substance which is of a protease nature but which inhibits the action of trypsin and pepsin by combining with these enzymes. The properties of this substance, its distribution and function in the worm, and its effect on the host are discussed. R.H.H.

(126b) Culbertson & Kaplan have been able to produce a partial immunity in mice against *Trichinella* by means of a passive transfer of immune serum from rabbits. The action of this antibody seems to be directed to larvae maturing in the intestine and must therefore be diffused through the intestinal wall. The protection is not absolute, as a few worms have always been able to mature and produce migrating larvae. P.A.C.

(126c) Chakravarty has recovered *Pseudaspidodera jnanendrae* n. sp., a nematode from *Pavo cristatus* from the vicinity of Calcutta. It can be distinguished from other species of this genus by the size and shape of the spicules, the constitution of the caudal alae, and the possession of cephalic cordons which are well developed and anastomose but which have no spines. P.A.C.

(126e) Five new bursate nematodes are recorded from Australian kangaroos by Davey & Wood, viz., *Macropostrongylus cornutus* n. sp. from *Macropus agilis*; *M. minor*, *M. macrostoma* and *M. labiatus* n. spp. from *Macropus robustus* and *Pharyngostrongylus ornatus* n. sp. from *M. robustus*. The 5 species were collected in Queensland. R.T.L.

## 127—Plant Disease Reporter.

- a. DARROW, G. M. & DEMAREE, J. B., 1938.—“Northern type of strawberry dwarf serious on the Chesapeake Peninsula.” 22 (7), p. 109.

(127a) Darrow & Demaree report severe damage to strawberry plants caused by *Aphelenchoides fragariae* in the Middle Atlantic States. The symptoms were of the type due to the northern strain of the eelworm, occurring during the spring but disappearing more or less completely later in the season.

M.T.F.

## 128—Policlinico (Sezione Pratica).

- a. CICCHITTO E., 1938.—“I primi casi di schistosomiasi intestinale da *Schistosoma mansoni* in Libia.” 45 (22), pp. 1049-1050, 1053-1054, 1057.

## 129—Poultry Science.

- a. HORSFALL, M. W., 1938.—“Meal beetles as intermediate hosts of poultry tapeworms.” 17 (1), 8-11.

## 130—Proceedings of the Indian Academy of Sciences. Section B.

- a. SEN, P., 1938.—“On a new species of Acanthocephala, *Acanthosentis holospinus* sp. nov. from the fish *Barbus stigma* (Cuv. and Val.).” 7 (1), 41-46.
- b. DAYAL, J., 1938.—“Studies on the trematode parasites of fishes. A new trematode *Neoganada barabankiae* (nov. gen., nov. spec.) from *Clarias batrachus*.” 7 (3), 132-137.
- c. DAYAL, J., 1938.—“A new trematode, *Phyllochorus macronius*, n. gen., n. sp. belonging to the family Gorgoderidae Looss (1901), from the body-cavity of a fresh water fish, *Macrones tengara*.” 7 (3), 138-142.
- d. ABDUSSALAM, M., 1938.—“On a new nematode parasite of the Himalayan flying squirrel (*Pteromys inornatus* Geoffroy).” 7 (6), 323-326.

(130b) Dayal's new genus, *Neoganada barabankiae*, is from the same host as *Ganada clariae* Chatterji. It is distinguished from the latter by its lobed testes, and by the presence of receptaculum seminis, yolk sac, and muscular metraterm.

E.M.S.

(130c) *Phyllochorus macronius* n. g., n. sp. differs from other genera of the Gorgoderidae chiefly in the possession of a receptaculum seminis, but also in the shape and relative position of the gonads.

E.M.S.

(130d) Abdussalam gives an illustrated description of *Wellcomia taylori* n. sp. from the caecum of *Pteromys inornatus* in India. Its nearest congener is *W. hilgerti* from which it differs in the absence of a vaginal extrusion and in having a longer male tail.

B.G.P.

## 131—Proceedings of the Society for Experimental Biology and Medicine.

- a. MCCOY, O. R., 1938.—“Ineffectiveness of sulfanilamide in the treatment of trichiniasis in rats.” 38 (4), 461-462.

## 132—Proceedings of the Zoological Society of London. Series C.

- a. LEIPER, R. T., 1938.—“Trichinosis in arctic animals.” 108 (3), 13-14.

(132a) Leiper reports the occurrence of trichina infection in 3 out of 4 polar bears and in 2 arctic foxes which have died in the London Zoological Gardens since 1904. He draws attention to the possible significance of this infection in relation to the unexplained breakdown in stamina of dog teams on Polar journeys.

R.T.L.

## 133—Public Health Reports. Washington.

- a. NOLAN, M. O. & BOZICEVICH, J., 1938.—“Studies on trichinosis. V. The incidence of trichinosis as indicated by post-mortem examinations of 1,000 diaphragms.” 53 (17), 652-673.
- b. REARDON, L., 1938.—“Studies on oxyuriasis. XVI. The number of eggs produced by the pinworm, *Enterobius vermicularis*, and its bearing on infection.” 53 (24), 978-984.

(133a) Extending the work of Hall & Collins [see Helm. Abs., Vol. VI, No. 131a] Nolan & Bozicevich have examined 1,000 diaphragms from Washington hospitals by microscopic and digestion techniques and report an incidence of 17.4% *Trichinella* infestation in this series. The data obtained lend further support to the theory that rapidity of calcification is more or less proportional to intensity of infestation, while the diminished chances of infection afforded by long periods of hospitalization and consequent proper cooking is shown by the results from mentally deranged patients.

V.D.V.S.

(133b) In 20 gravid female *Oxyuris vermicularis* the number of eggs range from 4,672 to 16,888 per worm. These figures are held by Miss Reardon to afford some explanation of the familial nature of oxyuriasis.

R.T.L.

## 134—Queensland Agricultural Journal.

- a. ROBERTS, F. H. S., 1938.—“Drenching for worms in sheep.” 49 (4), p. 365.
- b. ROBERTS, F. H. S., 1938.—“Worms in poultry.” 49 (4), p. 373.

(134b) Roberts considers that worms cause serious losses in poultry. Flock treatment recommended is: 0.5 c.c. nicotine sulphate in about 200 c.c. water per pound of dry mash mixed in thoroughly and fed continuously for 4 days. For individual treatment 0.5 to 2.0 c.c. of carbon tetrachloride to each bird, given as a capsule or by means of a syringe after one night's fasting, is recommended.

J.W.G.L.

## 135—Revista de Medicina Tropical y Parasitología, Bacteriología, Clínica y Laboratorio.

- a. BACIGALUPO, J., 1938.—“Nuevo huésped intermediario de la *Hymenolepis diminuta* (Rudolphi, 1829), *Embia* (*Rhagadachir*) *argentina*, Navas.” 4 (1), 45-47.
- b. BASNUEVO, J. G. & ANIDO, V., 1938.—“Conteo de huevos de helmintos,” 4 (2), 85-87.



(135a) Bacigalupo records a new intermediary for *Hymenolepis diminuta*, namely, *Embia (Rhagadachir) argentina* Navas. *Anisolabis annulipes* proved refractory except in one test. The other intermediaries known to be effective in Argentine are *Dermestes vulpinus* Fabr., *D. peruvianus* Castelnau, and the beetle *Ulosonia parvicornis* Fairmaire.

B.G.P.

### 136—Revue de Pathologie Comparée et d'Hygiène Générale.

- a. HENRY, A., 1938.—“Les anémies vermineuses chez les animaux.” 38 (496), 99-117.
- b. DUFRENOY, J., 1938.—“Le dépérissement vermineux des plantes.” 38 (496), 118-119.
- c. VELU, H., 1938.—“Les anémies vermineuses du bétail.” 38 (496), 124-139.
- d. TASKIN, J., 1938.—“Anémie due aux trichocéphales.” 38 (496), 139-142.

(136a) Henry summarizes present knowledge on the well-defined helminthic anaemias of domesticated animals, dealing successively with those caused by Fasciola, by the various genera of Strongyloidea, and (very briefly) by cestodes. The last he ascribes to toxic action and the others to predatory blood-sucking. Iron and copper constitute not only a therapeutic but also to some extent a prophylactic measure.

B.G.P.

(136b) In a very brief note Dufrenoy compares the destruction of chlorophyll in plants with the destruction of haemoglobin in animals, in so far as helminths are the cause, and describes a localized chlorosis in leaves of tobacco probably due to *Aphelenchoides ritzema-bosi*.

B.G.P.

(136c) Velu calls attention to the serious nature of verminous anaemia, the very existence of which as a definite morbid entity has almost been overlooked since the day when Pasteur made microbes fashionable. It is usually a chronic disease but may be acute in hookworm infections and in the ascaris pneumonia of young pigs. He discusses symptomatology and control in general terms.

B.G.P.

(136d) Taskin reports an epizootic in a pack of 100 Samoyed dogs in France, apparently due to massive infestation with *Trichuris vulpis*, although *Ancylostoma caninum* was present in small numbers. The symptoms, mainly haemorrhagic diarrhoea, completely disappeared after treatment with carbon tetrachloride fortnightly. Serious pathological effects in dogs have rarely been attributed to *Trichuris* by helminthologists hitherto.

B.G.P.

### 137—Riforma Medica.

- a. MASELLA, T., 1938.—“Peritonite da ascaridi da perforazione di diverticolo di Meckel libero.” 54 (14), 559-562.

### 138—Rivista di Parassitologia.

- a. VANNI, V., 1938.—“Osservazioni sulla funzione degli uncini dell'embrione dei cestodi.” 2 (2), 91-94.

(138a) Vanni reports the observation (supported by microphotographs) that the embryo of *Hymenolepis diminuta* escapes from the embryophore by the active use of the median pair of hooklets, which move rhythmically like the

opening and closing of a fan. Once free, it forms a gelatinous cyst. It may well be that other cestodes employ this method of hatching. B.G.P.

### 139—Science.

- a. WALKER, J. H., 1938.—“Permanent mounts of helminth eggs in aqueous preserving fluids.” 87 (2268), p. 558.

(139a) Walker recommends the use of “Murrayite”, a spirit-proof cement, used in sealing museum jars, as a seal for helminth eggs in 4% formaldehyde, and for adults and larvae of *Trichinella spiralis* in 4% formaldehyde with 30% glycerine. “Murrayite” has the great advantage that it adheres readily to the microscopical slide and the coverslip even if previously moistened with the preserving fluid. R.T.L.

### 140—Scottish Journal of Agriculture.

- a. NEWBIGIN, H. F. & MORGAN, D. O., 1938.—“Further observations on the treatment of poultry runs against worm infestation.” 21 (2), 158-162.

(140a) Newbiggin & Morgan show that the dressing of infested poultry runs with urea, tar distillate oil, ground lime, calcium cyanamide and bleaching powder are of little value in reducing the chances of infestation with roundworms. Other methods such as turning over the soil, burning with a blow-lamp and keeping the grass short by frequent mowings are equally ineffective. D.O.M.

### 141—South African Medical Journal.

- a. OSBURN, H. S., 1938.—“Strongyloidiasis in Natal.” 12 (8), 292-294.
- b. STEIN, H. B., 1938.—“Infection of the gall-bladder by *Schistosoma haematobium*.” 12 (8), 297-298.
- c. KLENERMAN, P., 1938.—“Three interesting cases of bilharzial infection in a family.” 12 (10), 361-362.

(141a) Osburn considers that in at least 2 of his 5 cases of strongyloidiasis the symptoms—diarrhoea and an anaemia characterized by low haemoglobin, low red cells, and white cells below 8,000—can be ascribed to the parasite. A feature of all 5 cases was the relatively low eosinophilia (1 to 15%) compared with published data for strongyloidiasis. B.G.P.

### 142—Taiwan Igakkai Zasshi.

- a. TANAKA, S., 1938.—“Some observations on the *Microfilaria bancrofti*.” 37 (3), 515-523. [In Japanese: English summary p. 523.]
- b. ISIOKA, H., 1938.—“Malaria and helminthiasis.” 37 (4), 678-684. [In Japanese: English summary p. 684.]
- c. KO, T., 1938.—“Ein Fall von Ausschlüpfung der Askariden durch die Mitte der Nabelgrube hindurch.” 37 (4), 758-763. [In Japanese: German summary p. 763.]

(142a) Tanaka notes irregular periodicity in a case of *Filaria bancrofti* with few embryos in the blood. The periodicity was not affected by cutting

off sunlight, hot baths, exercise or alcohol. *In vitro* effects of various disinfectants on the microfilariae are noted.

R.T.L.

(142b) It is concluded that the presence of intestinal helminths has little influence on the recovery of patients suffering from malaria, and the treatment of malarial fever can be carried out without taking helminth infestations into consideration.

R.T.L.

#### 143—Tijdschrift voor Diergeneeskunde.

- a. JANSEN, J., 1938.—“Over het voorkomen van leucosis, tumoren en darm-parasieten op een kippenbedrijf vrij van neurolymphomatosis gallinarum.” 65 (8), 392-394.

(143a) Autopsies made during  $3\frac{1}{2}$  years on 256 fowls from a flock of 2,000 to 3,000 which never suffered from fowl paralysis, showed severe infection with worms, especially *Davainea proglottina*, and also coccidia, while leucosis and tumours were frequent. These conditions bear no causal relationship to fowl paralysis.

H.M.

#### 144—Transactions of the American Microscopical Society.

- a. HOBGOOD, J. O., 1938.—“The metacercaria of *Cercaria flexicarpa* Collins.” 57 (2), 158-164.  
 b. HENDERSON, H. E., 1938.—“The cercaria of *Crepidostomum cornutum* (Osborn).” 57 (2), 165-172.  
 c. ODLAUG, T. O., 1938.—“*Zeugorchis longicirrus*, a new trematode from *Natrix sipedon*.” 57 (2), 173-177.  
 d. OLSEN, O. W., 1938.—“*Aplectana gigantea* (Cosmocercidae), a new species of nematode from *Rana pretiosa*.” 57 (2), 200-203.  
 e. WERBY, H. J., 1938.—“A new genus of Acanthocephala with forked lemnisci.” 57 (2), 204-212.  
 f. ACKERT, J. E., 1938.—“On the nutrition of the fowl nematode *Ascaridia lineata* (Schneider).” 57 (2), 218-222.

(144a) Hobgood exposed sunfish, *Apomotis cyanellus*, to large numbers of *Cercaria flexicarpa* from the snail *Helisoma trivolvis*. He obtained very heavy infections, one fish harbouring 1,026 of the black pigmented cysts. The metacercaria is a strigeid of the neascus type, with reserve bladder and groups of special gland cells in the hind-body, but showing no genital rudiments.

E.M.S.

(144b) Henderson describes the redia and cercaria stages of a trematode developing in bivalves of the genus *Musculium*. Crayfish, *Cambarus simulans*, were experimentally infected with the cercaria, and small metacercariae were recovered which are believed to be young *Crepidostomum cornutum*. Later in the year a natural infection of the same metacercaria was found in *Cambarus nais* in the same pond. The cercaria is an ophthalmoxiphidiocercaria very similar to that of *Crepidostomum cooperi*.

E.M.S.

(144c) Odlaug describes *Zeugorchis longicirrus* n. sp. from six specimens, three of them immature, of a trematode found in the oesophagus of *Natrix sipedon*. The species is distinguished from all others of the genus by the great length of the cirrus sac.

E.M.S.



(144d) Olsen describes as *Aplectana gigantea* n. sp., a species of nematode found in the stomach and intestine of *Rana pretiosa*. The species is at least twice as large as any other known species and differs from other North American species also in the shape of the gubernaculum. E.M.S.

(144e) Werby describes *Furcata adlueheia* n. g., n. sp. from the intestine of *Turdus migratorius propinguus*. The worms belong to the family Polymorphidae and the subfamily Plagiorhynchinae. The forked condition of the lemnisci is made the basis for the erection of the new genus. E.M.S.

(144f) Ackert finds that *Ascaridia lineata* is unable to find suitable or sufficient nourishment in the body cavity of a chicken when transferred surgically from the gut. Of 142 worms so transferred, 81 were recovered, but only 16 of these showed signs of having lived at all and 4 days was the maximum. A strong host reaction on the part of the fowl was obvious, including phagocytosis and encapsulation. P.A.C.

#### 145—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. DOWDESWELL, R. M., 1938.—“Schistosomiasis in the Kavirondo district of Kenya Colony.” 31 (6), 673-688.
- b. O'CONNOR, F. W. & KNOTT, J., 1938.—“Chylous filarial lymphatic varix. (A clinical pathological report.)” 32 (1), 125-128.

(145a) Although both *Schistosoma haematobium* and *S. mansoni* are widespread in Kenya they occur in certain limited areas. The most important areas for *S. haematobium* are the coastal belt and the region round the shores of Victoria Nyanza. In other places the infected areas are comparatively small. The intermediate host of *S. haematobium* is stated to be *probably* *Physopsis nasuta* or *Bulinus forskalii* or possibly both. It is concluded that *P. nasuta* is the intermediary of *S. bovis* on experimental grounds, although no animal schistosomiasis has been reported from Central Kavirondo and only two cases have hitherto been seen in Kenya. Cases of *S. mansoni* occur in Central Kavirondo and it seems likely that *Planorbis stanleyi* is the vector there. R.T.L.

#### 146—Veterinary Journal.

- a. LANE, C., 1938.—“Drug-induced sterility of female filarial worms.” 94 (4), 158-161.
- b. MASHETER, J. W. H., 1938.—“‘Hoose’ in lambs!” 94 (4), 163-164.

(146b) A high mortality in a flock of 11 months old lambs was found by Masheter to be due to heavy infestations of *Dictyocaulus filaria*. Intra-tracheal injection of 1 c.c. of a preparation of turpentine, laudanum, glycerine and carbolic acid gave highly satisfactory results and further injections were not found necessary. D.O.M.

## 147—Veterinary Record.

- a. TAYLOR, E. L., 1938.—“The logical approach of veterinary parasitology to obscure disease problems.” 50 (15), 434-436.
- b. WATKINS, C. V., 1938.—“Some diseases of silver foxes.” 50 (17), 481-489.
- c. PECK, E. F., 1938.—“The use of mineral oil as a vehicle for oil of chenopodium in equines.” 50 (18), p. 505.
- d. ROWLANDS, W. T., 1938.—“Some local sheep disease problems.” 50 (21), 604-610.
- e. OLDHAM, J. N., 1938.—“Internal parasites of pigs.” 50 (23), 679-685.

(147a) Taylor considers that the logical approach to investigations on parasitism is to begin with the disease and then follow with studies on the parasite which causes it. Progress in veterinary science is not advanced by minute studies on parasites without reference to their pathogenicity. The author draws particular attention to the fact that while extensive basic biological work has already been done on worms in poultry, there is urgent need for researches on the relation of these parasites to disease. D.O.M.

(147b) The helminthic diseases of silver foxes discussed include primarily lungworms: *Crenosoma vulpis* causing a very severe purulent bronchitis and *Capillaria aerophila* causing chronic bronchitis which may lead to a fatal broncho-pneumonia. The life-histories are described and control measures suggested. The other worms mentioned are *Toxocara canis* and *Uncinaria stenocephala*. J.W.G.L.

(147c) Peck recommends and gives reasons for using mineral oil in place of linseed oil as a vehicle for oil of chenopodium in the treatment of strongylosis in the horse. The dose is put at one pint of mineral oil to 12 c.c. of oil of chenopodium per 800 lb. live weight. J.W.G.L.

(147d) In the course of his paper Rowlands touches upon liver-fluke and parasitic gastro-enteritis in sheep in the North Wales district. Against fluke he recommends the combination of carbon tetrachloride treatment of sheep (repeated in one month) with copper sulphate dressings of land in July to September. For stomach worms he recommends the mixture of copper and nicotine sulphates, both 5%. B.G.P.

(147e) Oldham's annotation gives notes on all the internal parasites of swine found in Britain and a few of those occurring abroad. A short description of each parasite followed by the life-history, control measures and treatment where effective is given and special attention paid to the public health aspects of the various parasites. J.W.G.L.

## 148—Vlaamsch Diergeneeskundig Tijdschrift.

- a. WAELE, A. DE, 1938.—“Is invasie door *Paragonimus*, de verwekker der parasitaire haemoptisie, in onze streken mogelijk?” 7 (4), 113-116.

(148a) De Waele discusses the possibility of paragonimiasis becoming endemic in Belgium now that the mitten crab, *Eriocheir sinensis*, is well established. The usual first intermediaries are absent, but possibly one of

the indigenous snails would serve, or a true intermediary might be accidentally introduced. A reservoir host is present in the form of the muskrat.

B.G.P.

#### 149—Zeitschrift für Fleisch- und Milchhygiene.

- a. WOLFFHÜGEL, K., 1938.—“Wieviel eingekapselte Trichinen (*Trichinella spiralis*) erzeugt ein Muttertier?” 48 (16), 301-302.
- b. KELLER, H., 1938.—“Wird durch die Aufbewahrung finnigen Rindfleisches in Kühlräumen die Invasionsfähigkeit der Rinderfinne aufgehoben und an welchem Zeitpunkt?” 48 (17), 322-325.

(149a) Because of their omission by subsequent workers, Wolffhügel restates his results from a paper of 1919, showing that approximately 137 larvae develop from a single adult female *Trichinella* in a white rat. It is essential, especially in larger animals, to examine the whole musculature to get a correct result from an infection with two larvae.

V.D.V.S.

(149b) In order to render beef infested with *Cysticercus bovis* harmless, Keller finds that the interior of the carcass should be maintained at 0° to 0.5°C. for 23 days, or at 2° to 3°C. for 25 days. This treatment does not necessarily kill the cysticerci, but renders them uninfecive.

B.G.P.

#### 150—Zeitschrift für Infektionskrankheiten, Parasitäre Krankheiten und Hygiene der Haustiere.

- a. LANGE, H., 1938.—“Ueber eine durch *Tropisurus fissispinus* Diesing hervorgerufene Magenwurmseuche bei Enten, mit besonderer Berücksichtigung der Entwicklung des Parasiten auf Grund des pathologisch-anatomischen Befundes.” 53 (1/2), 1-8.
- b. WOLFFHÜGEL, K., 1938. — “Nematoparataeniidae. Skolex und Verdauung.” 53 (1/2), 9-42.

(150a) Lange has worked out the life-history of *Tropisurus fissispinus*, a parasite of ducks, and finds that the vectors are water-fleas (*Daphnia* and *Gammarus pulex*). The adult parasite is lodged in the deep layers of the proventriculus where it causes severe pathological changes. He suggests that the best method of control is to keep birds away from infected ponds for a period of 3 to 4 months, during which time infected water-fleas will die.

P.A.C.

(150b) Wolffhügel creates the new sub-order Heterocyclophyllidea to contain *Nematoparataenia southwelli* and *Gastrotaenia cygni* n. g., n. sp. This new parasite is highly specialized, having lost sex ducts and opening. There are characteristic glands on the scolex from which a secretion, irritating to the host mucosa, is poured out. In this respect it resembles *Hymenolepis megalops*.

P.A.C.



## 151—Zeitschrift für Parasitenkunde.

- a. HEIDEGGER, E. & MENDHEIM, H., 1938.—“ Beiträge zur Kenntnis der Gattung *Platynosomum*. I. *Platynosomum fallax* n. sp., ein neuer *Dicrocoeliine* aus dem Gelbwangenkakadu (*Cacatua sulfurea*).” 10 (1), 94-107.
- b. GÖSSWALD, K., 1938.—“ Über bisher unbekannte, durch den Parasitismus der Mermithiden (Nemat.) verursachte Formveränderungen bei Ameisen.” 10 (1), 138-152.
- c. MIRZA, M. B. & BASIR, M. A., 1938.—“ On a collection of nematodes from Hyderabad Deccan (India).” 10 (2), 217-220.
- d. YAMAGUTI, S., 1938.—“ Zur Entwicklungsgeschichte von *Notocotylus attenuatus* (Rud., 1809) und *N. magniovatus* Yamaguti, 1934.” 10 (2), 288-292.
- e. YAMAGUTI, S., 1938.—“ Zur Entwicklungsgeschichte von *Centrocestus armatus* (Tanabe) mit besonderer Berücksichtigung der Cercarie.” 10 (2), 293-296.

(151a) Heidegger & Mendheim describe *Platynosomum fallax* n. sp. from the liver and bile ducts of a specimen of *Cacatua sulfurea* which died in a Munich pet shop. Between 200 and 250 specimens were estimated to be present, the bile ducts being so enlarged as to give a “hummocky” appearance to the surface of the liver. The connective tissue walls of the ducts were much thickened, the bile contaminated with sluffed-off epithelium, leucocytes and erythrocytes, and the remaining “bridges” of liver tissue hyperaemic. There was a noticeable absence of eosinophilia. It is pointed out that trematodes have not previously been reported from parrots, and in view of the extensive liver injuries and final death, it is suggested that this is not the normal host. In a supplement *Dicrocoelium proxilliciens* Canavan from the same host is acknowledged, but transferred also to the genus *Platynosomum*.  
E.M.S.

(151b) Prompted by the publication, in 1937, of a paper by the late W. M. Wheeler dealing with mosaics and other anomalies among ants and by the finding of a number of *Mermis*-infested ants in the central Main district, Gösswald discusses some new modifications, not mentioned by Wheeler, caused by parasitism with Mermithidae in these insects. Dealing first with the ecology of *Mermis*, the author points out that the parasite is particularly prevalent in dry, limestone biotopes, poor in vegetation, with a fairly warm microclimate and usually rich in ants; in such areas about 70% of colonies of *Lasius flavus* and *L. alienus* were infested. In contrast, only about 0.5% of nests in biotopes with a damp, cold soil, rich in vegetation and usually poor in ants were parasitized. Although the abundance of *Mermis* coincides with the abundance of ants the author finds it impossible to detect a preference for, or a dependence on, chalky soil by the parasites, but rather that the number of ants plays the main part in the distribution of the worms; in densely populated chalky biotopes the chances of infestation are greater than areas poor in ants and also the decimating effect of the parasites is more readily compensated in biotopes where ants find optimum biological conditions and where destroyed colonies are soon replaced by new ones. It appears impossible for *Mermis* to spread in biotopes poorly inhabited by ants so that the spread of *Mermis* is closely linked with the ecological conditions of its hosts. The author considers that the size of the parasites has a relationship

to the modifications they produce in the ants, the larger the *Mermis*, i.e., the earlier they penetrated the larval insect, the more striking is the change, especially the shortening of the wings, in the ant. In a nest it is possible for 8 kinds of *Mermis*-infested ants to occur: males which externally appear normal (*Mermithanes*); normal females (*Mermithogynes*); normal workers (*Mermithergates*); males with short wings (brachypterous *Mermithanes*); females with short wings (brachypterous *Mermithogynes*); females with alar stumps; females with alar stumps, stunted thorax and yellow worker-like head; and females with alar lobes, stunted thorax and head, this last partly resembling that of a worker and partly of a female. In attempting to explain these modifications the author notes that modified ants are infested in a late larval stage because infested early larvae do not develop and that the degree of modification depends on the time when the larvae became infested. In unmodified but parasitized insects infestation occurs either in a larval stage no longer capable of modification, or as an adult, *per os*. Gösswald considers that modifications arise owing to the insects being deprived of food by the parasite and not by hypertrophy of the larvae. The paper concludes with a discussion on the origin of the modifications exhibited by the various kinds of *Mermis*-infested ants. J.N.O.

(151c) *Spirura narayani* n. sp. from the stomach of *Herpestes mungo*, and *Cyrnea coraci* n. sp. from *Coracias indica* are briefly described from India.

R.T.L.

(151d) Yamaguti defends his species *Notocotylus magnioatus*, the duck trematode, whose cercariae develop in *Semisulcospira libertina*, which Bhalerao has declared a synonym of *N. attenuatus* Rud. developing in *Bulimus striatulus japonicus*. He is able to show a considerably larger size of all stages of the new species, and also the presence of lateral lappets on the rediae which are lacking in those of *N. attenuatus*.

E.M.S.

(151e) By means of "infection experiments" [not described] Yamaguti has identified the cercaria of *Centrocestus armatus*. It is positively phototropic, has eye spots and a simple tail, but no trace of alimentary canal beyond the pharynx. It encysts in the gills of *Pseudorasbora parva* where it requires 2 months to develop into the metacercaria. *Milvus migrans lineatus* is declared to be an important final host.

E.M.S.

## 152—Zentralblatt für Bakteriologie. Abteilung I. Originale.

- a. KALWARYJSKI, B. E., 1938.—"Studien über die Trichinellen. III. Ueber die durch Jodsilberimprägnation darstellbaren Kutikularbildungen der Muskeltrichinellen." 141 (5/6), 247-278.
- b. KREIS, H. A., 1938.—"Beiträge zur Kenntnis parasitischer Nematoden. VI. Parasitische Nematoden aus dem Zoologischen Garten in Basel." 141 (5/6), 279-304.

(152a) By staining with a special silver iodide impregnation method, Kalwaryjski has been able to describe in great detail certain structures such as perioral plates, semicircular "ribs" and rings in the cuticle of *Trichinella* larvae. These are not artefacts and may be shown mathematically to be placed in positions advantageous for the spiral coiling habit of the larvae.

V.D.V S.



(152b) These systematic descriptions of nematodes from various hosts include the following new forms: *Trichuris hystricis* n. sp. from *Hystrix cristata*, *Toxascaris multipapillata* n. sp. from *Ursus americanus*, *Anisakis tridentata* n. sp. from *Eumotopias jubata* and *Ascaridia neocordata* n. sp. from *Tetrao urogallus*.  
R.T.L.

### 153—Zoologische Jahrbücher. Abteilung für Anatomie und Ontogenie der Tiere.

- a. MEYER, A., 1938.—“Die plasmodiale Entwicklung und Formbildung des Riesenkratzers (*Macracanthorhynchus hirudinaceus* (Pallas)). III. Teil.” 64 (2/3), 131-197.
- b. MEYER, A., 1938.—“Die plasmodiale Entwicklung und Formbildung des Riesenkratzers (*Macracanthorhynchus hirudinaceus* (Pallas)). IV. Allgemeiner Teil.” 64 (2/3), 198-242.

### 154—Zoologische Jahrbücher. Abteilung für Systematik, Ökologie und Geographie der Tiere.

- a. FUCHS, A. G., 1938.—“Neue Parasiten und Halbparasiten bei Borkenkäfern und einige andere Nematoden. II, III und IV. Teil.” 71 (1/2), 123-190.

(154a) Fuchs continues his studies, in this second paper [see Helm. Abs., Vol. VI, No. 398a], of parasitic and semi-parasitic nematodes found in association with certain bark beetles and weevils. Amongst the various roundworms dealt with, the following new species are described: *Anguillulina orta*, *Anguillonema poligraphi*, *A. crenati*, *A. pinguicauda*, *A. petithi* and *A. striata*; a diagnosis of *Anguillonema* n. g. is also given. Six new forms, named after their beetle hosts, are described for various species of *Parasitylenchus*; they are *P. dispar* varieties *chalcographi*, *poligraphi* and *pusilli*, *P. sulphureus* varieties *chalcographi* and *poligraphi* and *P. contortus* var. *chalcographi*. In addition, the author describes *Diplogaster mikuschi* n. sp., *Oncholaimus diversidens* n. sp., *Monhystera mali* n. sp., *Tylenchodon pissodis* var. *piniphili* n. var. and *Diplogaster consobrinus* var. *austriacus* n. var. The paper concludes with a discussion on the influence of temperature and humidity on the development of the beetles, their parasites and the non-parasitic forms found associated with the Coleoptera.  
J.N.O.

### 155—Zoologischer Anzeiger.

- a. DOTTERWEICH, H., 1938.—“Die Züchtung von *Rhabditis teres* (A. Schn.) für physiologische und genetische Untersuchungen.” 122 (9/10), 266-268.

(155a) Dotterweich gives details for the preparation of an agar medium for the cultivation of soil nematodes such as *Rhabditis teres*. In 100 c.c. of Knop solution the following are dissolved by heating: 2 g. agar, 0.2 g. Liebig's meat extract, 0.2 g. peptone and 0.3 g. common salt. On cooling to about 50° to 60°C., 5 c.c. of freshly expressed potato juice are thoroughly mixed with it. The medium must also be made slightly alkaline in reaction.  
T.G.



## NON-PERIODICAL LITERATURE.

- 156—CHITWOOD, B. G. & CHITWOOD, M. B., 1938.—“An introduction to nematology.” Babylon, Section I, Part II, pp. 55-122.

The second part of this work by Chitwood & Chitwood consists of four chapters. Chapter V deals with cephalic structures and the stoma; chapter VI with the oesophagus and the oesophago-intestinal valve; chapter VII with the intestine, and chapter VIII with the posterior gut and structures of the proctodaeum. In each chapter the organs described are dealt with under orders and families, etc., within the authors' two main groups, namely, Phasmodia and Aphasmodia. The text contains a great deal of detailed information and is illustrated with a large number of excellent drawings. A bibliography completes each chapter.

T.G.

- 157—STEMPELL, W., 1938.—“Die tierischen Parasiten des Menschen.” Jena, viii+226 pp.

- 158—WESCHE, H., 1938.—“Toxikologische und therapeutische Versuche mit Tetrachlorkohlenstoff am Geflügel.” Inaugural-Dissertation, Leipzig, 46 pp.

Wesche has had no success in the treatment of *Heterakis*, *Ascaridia*, *Capillaria* or *Coccidia* of fowls and pigeons, using  $\text{CCl}_4$  in varying doses.

P.A.C.